

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



QK61  
.U5

1970 ANNUAL REPORT  
NATIONAL PLANT MATERIALS CENTER

U. S. DEPT. OF AGRICULTURE  
NATIONAL AGRICULTURAL LIBRARY  
RECEIVED

FEB 25 1972

PROCUREMENT SECTION  
CURRENT SERIAL RECORDS



UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
BELTSVILLE, MARYLAND



United States Department of Agriculture  
Soil Conservation Service  
National Plant Materials Center  
Beltsville, Maryland

1970 ANNUAL REPORT

Table of Contents

|                                  | <u>Page</u> |
|----------------------------------|-------------|
| Personnel.....                   |             |
| Introduction.....                | 1           |
| Weather Data.....                | 3           |
| Key to Symbols on Tables.....    | 4           |
| Notes & Comments                 |             |
| Grasses.....                     | 5           |
| Key to Symbols on Tables.....    | 19          |
| Notes & Comments                 |             |
| Legumes & Other.....             | 20          |
| Summary of Reidentification..... | 47          |
| Domestic Distribution            |             |
| Seed.....                        | 50          |
| Vegetative Material.....         | 53          |
| Bulk Seed.....                   | 54          |
| Seed Production - 1970           |             |
| Grasses.....                     | 55          |
| Legumes & Other.....             | 61          |

-----oOo-----

United States Department of Agriculture  
Soil Conservation Service  
National Plant Materials Center  
Beltsville, Maryland

PERSONNEL

H. W. Everett.....Manager  
Frederick B. Gaffney.....Soil Conservationist  
Gary V. Schultz.....Soil Conservationist  
Robinson P. Abbott.....Biological Technician  
Richard C. Russell.....Biological Technician  
William T. Barnes.....Nursery Worker  
Eugene O. Jones (WAE).....Nursery Worker  
Helen M. Chamberlin.....Clerk-Stenographer

o  
ooo  
ooooo  
ooooooo  
ooooooooo  
ooooooooo  
oooooo  
ooo  
o

United States Department of Agriculture  
Soil Conservation Service  
National Plant Materials Center  
Beltsville, Maryland

INTRODUCTION

This report covers the operations of the National Plant Materials Center for the calendar year 1970. Major functions of the Beltsville PMC include the assembly of seeds and/or plants from world-wide sources for the SCS plant materials program; initial increase of assembled material; exchange of conservation plant materials with other countries; and arrangements for verification of identity of plant material.

Assembly of new plant materials is vital to an active plant materials program. New accessions totaled only 285 in 1970 because assembly from foreign sources was very low. Distribution of these accessions to the plant materials centers will be made as soon as increased seed quantities allow.

Distribution of seed or other plant materials is made to SCS plant materials centers and specialists, other agencies of the Department of Agriculture, State Experiment Stations, and plant scientists. A total of 1,102 packets of seed were sent to SCS plant materials centers in 1970; distribution to other agencies totaled 331 packets; and 504 packets were distributed to different foreign countries. Most foreign packets were sent to New Zealand, Afghanistan, Ecuador, England, Morocco, and Israel.

The summary of reidentification provides the latest information on plant name changes through herbarium identifications.

1970 ACTIVITIES

The NPMC participated in the National Lawn and Garden Week Show at the USDA Administration Building in Washington, D.C. in March. Plants used in sand dune erosion control were exhibited. A sand dune was constructed of perlite. Beachgrass, dune panicgrass, coastal panicgrass, rugose rose, bermudagrass, shore juniper and other adapted species were planted in the sand. A painted beach cottage background provided a realistic and natural setting. An information sheet about the plants was presented to many interested visitors.

The New York, New Jersey, Kentucky and Mississippi Plant Materials Centers are cooperating with the NPMC in gathering information on about 90 accessions of *Salix* spp. for a report to be compiled at Beltsville. Information should be useful in selecting species for further trials on streambank, pond and riverbank plantings.

The updating of interest in genera and species by plant materials centers is continuing in order that the Beltsville PMC provide more service to the other centers. Your suggestions, needs and requirements are solicited and welcomed.

The Crider Memorial Garden of Conservation Plants continues to be of interest to all visitors to the NPMC, and to people touring the Agricultural Research Center. Visitors enjoy observing conservation plants from other parts of the United States.

H. W. Everett, F. B. Gaffney, G. V. Schultz, and H. M. Chamberlin completed courses at the University of Maryland or the USDA Graduate School during 1970.

The NPMC participated in the Disadvantaged Youth Program and employed three high school boys during the summer months. These employees rendered valuable assistance in seed collection, field and grounds maintenance and seed cleaning.

Mr. R. P. Abbott retired from the Biological Technician position. He had been working at Beltsville since 1936. Mr. Abbott retired to pursue his interest in fishing and producing orchids and cacti.

Mr. R. C. Russell was promoted to the position of Biological Technician. Mr. Russell has experience as a nursery worker, machinery operator and Biological Aid at the NPMC.

Mr. F. B. Gaffney was transferred from the NPMC to manage the New Jersey PMC.

A paper titled 'Direct Establishment of Shrubs and Other Woody Vegetation' was presented by Mr. H. W. Everett at the 29th Ohio Short-course for Roadside Development. This publication is a direct result of the SCS - Maryland State Highway Administration Cooperative Project.



WEATHER DATA

1970

National Plant Materials Center  
Beltsville, Maryland

|           | Temperature - °F. |      |          |           | Total Precipitation (inches) |
|-----------|-------------------|------|----------|-----------|------------------------------|
|           | Low               | High | Mean Low | Mean High |                              |
| January   | 2                 | 60   | 15.1     | 35.4      | .86                          |
| February  | 9                 | 61   | 22.8     | 44.4      | 2.17                         |
| March     | 17                | 64   | 28.7     | 47.3      | 2.84                         |
| April     | 26                | 83   | 38.6     | 63.1      | 4.58                         |
| May       | 30                | 90   | 52.0     | 76.6      | 2.64                         |
| June      | 47                | 90   | 59.2     | 82.1      | 2.79                         |
| July      | 52                | 92   | 64.8     | 85.5      | 5.34                         |
| August    | 57                | 91   | 62.3     | 85.2      | 2.89                         |
| September | 39                | 94   | 57.2     | 82.9      | 1.52                         |
| October   | 34                | 82   | 47.7     | 69.0      | 3.14                         |
| November  | 17                | 65   | 36.4     | 54.2      | 5.31                         |
| December  | 15                | 69   | 26.9     | 44.4      | <u>3.10</u>                  |
| Total     |                   |      |          |           | 37.18                        |

Data furnished by: Nutritional Management Investigations  
Dairy Cattle Research Branch, ARS

# KEY TO SYMBOLS ON TABLES

| PI     | Stems    |           |              | Spring recovery |          |          | Leaves   |                     |  |
|--------|----------|-----------|--------------|-----------------|----------|----------|----------|---------------------|--|
| Number | Number   | Thickness | Habit        | Time            | Amount   | Number   | Texture  | Location            |  |
|        | A-abund. | C-coarse  | E-erect      | E-early         | A-abund. | A-abund. | C-coarse | B-basal             |  |
|        | M-mod.   | M-med.    | SE-sub-erect | L-late          | M-medium | M-mod.   | M-medium | C-cauline           |  |
|        | F-few    | F-fine    | P-prostrate  |                 | S-sparse | F-few    | S-soft   | WD-well distributed |  |

| Size at Maturity                        | Leaf spot                       | Maturity        | Rating and Notes |
|---|---------------------------------|-----------------|------------------|
| Stem Height - Leaf Height x Plant Width | L-light<br>M-medium<br>S-severe | Numerical Month | Self explanatory |

## NOTES & COMMENTS

### GRASSES

#### Agropyron cristatum (L.) Gaertn.

PI-330686, a perennial bunchgrass from Iran, produced abundant, fine, erect stems and few, soft, cauline leaves. Mature size was 32"-18"x12" and leafspot was light. Bloomed May and June, matured July.

#### Agropyron imbricatum (Bieb.) Roem. & Schult.

PI-325182, a perennial bunchgrass had abundant, fine, erect stems and few to medium amounts of well-distributed, medium textured leaves which were both basal and cauline. Plant size was 13"-9"x11" but variable. Spring recovery was very early and abundant. This accession from the USSR is probably dwarfed by the summer weather in Beltsville.

#### Agropyron pectiniforme Roem. & Schult.

PI-302993 from Turkey was a perennial stooling bunchgrass with medium to abundant fine, erect stems and few, soft cauline leaves. Mature size was 16"-8"x7". Bloomed June, matured in July. Leafspot was light during the summer. Accession was highly variable and produced little cover.

#### Agropyron sibiricum (Willd.) Beauv.

Two Russian accessions were grown at Beltsville during 1968, 1969, and 1970. These perennial bunchgrasses eventually died out.

PI-315362 lived for two years, producing abundant, fine, erect stems, bearing a few, soft leaves. Mature plant size varied from 24"-18"x13" to 15"-11"x6". This accession became dormant in August, and was discarded the following May.

PI-325189 was planted in 1969 and developed a leafspot problem in May. By October all plants had died.

Neither accession was suited to the high temperature and humidity at Beltsville.

PI-325184 was a perennial bunchgrass from USSR also. Plants were 24"-14"x16" with a moderate amount of medium sized erect stems and a moderate amount of medium textured basal and few cauline leaves. Accession performed poorly during the heat of the summer at Beltsville.

#### Agropyron stipifolium Czern.

PI-325181 was a perennial stooling bunchgrass from the USSR that performed very poorly at this location, producing only a few leaves and stems. The accession was also subject to light leafspot and was destroyed after two years observation.

#### Agropyron subulatum Soland

PI-204379, originally from Turkey, was a perennial rhizomatous accession resembling Agropyron repens. It produced abundant, coarse, erect stems and medium numbers of medium textured, cauline leaves. Mature plant size was 38"-22"x40". Bloomed June, matured in August. Accession was very woody and eventually destroyed.

## GRASSES

### Agrostis transcaspica Litv.

PI-283174, like many other Russian accessions, displayed declining vigor at Beltsville. It grew well the first year, producing abundant, soft stems and leaves. The stems were sub-erect; the leaves were basal and cauline. Being both rhizomatous and stoloniferous, the plants grew to 24"-13"x36". The plants became dormant during the summer and eventually died.

### Alopecurus pratensis L.

Four accessions from the USSR were grown. None of these perennial bunchgrasses were vigorous at Beltsville.

| <u>PI</u> | <u>Stems</u> | <u>Leaves</u> | <u>Size</u> | <u>Leafspot</u> | <u>Maturity</u> | <u>Notes</u>                             |
|-----------|--------------|---------------|-------------|-----------------|-----------------|--|
| 315369    | M,M,E        | F,S,B&C       | 28"-15"x9"  | L-S             | June            | Poor accession                           |
| 325195    | None         | VF,S,B        | 4"x4"       | M-S             | Died            | Poor vigor<br>Poor accession             |
| 326210    | A,F,E        | F,S,B         | 16"-9"x9"   | None            | June            | Variable                                 |
| 326212    | M,M,E        | F-M,S,B&C     | 25"-14"x10" | None            | June            | Poor vigor<br>Poor accession<br>Variable |

All accessions performed poorly during the summer months.

### Aeluropus littoralis (Gouan) Parl.

PI-314594 was a rhizomatous and stoloniferous perennial from the USSR. Stems were medium in abundance and size and were sub-erect to prostrate in habit. Leaves were moderately abundant, harsh, cauline and well-distributed. Mature size of the leaves of the plant was 10"x12" with some stolons to 24".

Plants appeared to do best their first year in the field and slowly deteriorate over the next two years. Only extended periods of summer drought and heat seem to affect the accession.

### Arrhenatherum elatius (L.) Presl.

Tall oatgrass

PI-338629 from Morocco is a perennial bunchgrass, which exhibited good vigor at Beltsville. Stems were abundant, of medium texture, and erect with medium amount of soft, cauline leaves. This accession had early spring recovery and matured in mid-June, with a size of 50"-30"x20". Light to moderate leafspot had occurred by the time of full bloom in late May. The accession is highly variable with regard to leaf quantity.

### Bothriochloa ischaemum (L.) Keng.

PI-325211 and PI-325212 from USSR, and PI-330698 and PI-330699 from Iran were grown. All had abundant to moderately abundant erect stems, which were medium to fine in size. PI-330698 surpassed the others in size and leaf production, growing to 52"-36"x50" and having abundant leaves. (Other accessions were medium in amount of leaf production.) These perennial bunchgrasses grew well at Beltsville.



## GRASSES

Brachypodium pinnatum (L.) Beauv.

Japanese falsebrome

The following PI numbers were discarded due to severe leafspotting and poor performance at Beltsville:

|           |        |
|-----------|--------|
| PI-185135 | Iraq   |
| PI-206682 | Turkey |
| PI-230112 | Iran   |
| PI-325214 | USSR   |

They had been under observation for two years, and of the four, only PI-230112 produced a good leaf mass in 1969. Four accessions from the USSR - PI-325213, PI-325215, PI-325216, and PI-325219 are reported below.

| <u>PI</u> | <u>Stems</u> | <u>Leaves</u> | <u>Size</u> | <u>Mature</u> | <u>Notes</u>                                |
|-----------|--------------|---------------|-------------|---------------|---|
| 325213    | No heads     | M,M,B&C       | 15"x21"     | None          | Erect variation in size. No seed heads.     |
| 325215    | F,M,E        | M,S,Basal     | 23"-17"x19" | 8             | Leafspot moderate. Great variation in size. |
| 325216    | F,M,E        | M,S,B         | 26"-19"x16" | 7             | Bloom in mid-June. Leafspot moderate.       |
| 325219    | VF,F,E       | F,S,B&C       | 24"-13"x 8" | 6             | Began dying-out in June.                    |

Brachypodium sylvaticum (Huds.) Beauv.

Slender falsebrome

This bunchgrass grew well, producing abundant stems and leaves. The stems were fine and erect. The soft leaves were both basal and cauline. Mature size was 28"-16"x15". Bloom occurred in June, one month prior to maturity. This accession was numbered PI-251102.

Bromus biebersteinii Roem. & Schult.

PI-325226 remained vigorous throughout the growing season and was a rhizomatous, perennial grass with erect, abundant, medium textured stems. The leaves were basal and cauline, soft, and abundant. The plants were 34"-18"x15" at maturity. Spring recovery was early, and abundant. Blooms occurred in mid-June.

Bromus erectus Huds.

This perennial bunchgrass was grown at Beltsville for three years. PI-311371 produced abundant, erect, fine stems, with a moderate number of soft, basal and cauline leaves. Plant size was 26"-12"x15" at maturity in June. Seed production was light with no fill. Severe lodging and moderate leafspot was noted on this accession.

Bromus inermis Leyss.

There were nine accessions of this species tested during 1969 and 1970. They were PI-325227, PI-326258, PI-326259, PI-326260, PI-326261, PI-326262, PI-326263, PI-326264, and PI-326265. All were subject to leafspot, and except for PI-326262, the disease was severe. All accessions were from the USSR and were not adapted to Beltsville summers. They are compared on the following page.

Bromus inermis

| PI     | Spring<br>recovery | Stems             | Leaves    | Size        | Leafspot | Maturity | Notes                                |
|--------|--------------------|-------------------|-----------|-------------|----------|----------|--------------------------------------|
| 325227 | E, A               | A, C, E           | M, S, C   | 40"-22"x28" | Severe   | 7        | Shattering                           |
| 326258 | VE, A              | A, F, E           | A, S, B&C | 26"-18"x24" | Severe   | 9        | Variable vigor                       |
| 326259 | VE, A              | M, M, E           | A, M, B&C | 28"-16"x16" | Severe   | 7        | Variable color                       |
| 326260 | VE, A              | A, M, E           | A, S, B&C | 28"-17"x18" | Severe   | 7        | Variable                             |
| 326261 | E, A               | Destroyed in June |           |             |          |          |                                      |
| 326262 | E, A               | M, F, E           | M, S, B&C | 14"- 7"x10" | Moderate | 7        | Good fall regrowth                   |
| 326263 | E, A               | A, M, E           | A, S, B&C | 18"-12"x12" | Severe   | 7        | Very leafy, good<br>cutting response |
| 326264 | E, A               | A, M, E           | M, S, C   | 34"-22"x15" | Severe   | 7        | Good cutting response                |
| 326265 | E, A               | M, M, E           | F, S, C   | 27"-15"x15" | Severe   | 7        | Variable, few leaves                 |

## GRASSES

### Bromus unioloides HBK.

This grass is a perennial bunchgrass from Argentina. It exhibited very early spring recovery at Beltsville and responded rapidly to cutting.

Medium numbers of coarse, erect stems were produced by PI-337517. The stems bore few soft leaves and attained a size of 32"-22"x13" the second year. Seed production was excellent.

### Bromus vernalis Panc.

BN-8001 was a perennial rhizomatous, sod-producing grass originally from Spain. It had poor emergence in 1968, but showed good vigor. Abundant fine, erect stems and moderate numbers of soft, basal leaves were produced. A size of 30"-12"x13" was attained in May with maturity shortly thereafter in June. By October, 1969, a very dense sod had been established.

### Calamagrostis arundinacea (L.) Roth

PI-325239 and PI-325240, perennial bunchgrasses from the USSR, were grown during 1969 and 1970. They compare as follows:

| PI     | Spring<br>recovery | Stems | Leaves | Size        | Leafspot | Vigor | Maturity |
|--------|--------------------|-------|--------|-------------|----------|-------|----------|
| 325239 | E,A                | M,M,E | F,M,C  | 44"-24"x12" | Light    | Fair  | 6        |
| 325240 | E,A                | F,M,E | F,M,C  | 48"-18"x16" |          | Poor  | 6        |

### Calamagrostis epigeios (L.) Roth

This rhizomatous grass from the USSR had early and abundant recovery in the spring. It produced abundant, erect stems with medium texture. The cauline leaves were medium in texture and amount. Plant size at maturity was 40"-28"x24". The plants were in full bloom in early June and matured in July.

### Carex sp.

PI-338634 from Morocco, produced very few triangular, fine, erect but drooping stems. Leaves were medium in abundance and texture, and were basal. Mature size was 17"-12"x20".

### Dactylis glomerata L. 'Nika'

PI-305498 from Poland was a perennial bunchgrass, producing few, medium-sized, erect stems and very abundant, soft, basal and cauline leaves.

Mature size was 36"-20"x16" in June. Seed producing potential appeared very low at this location, but the abundant leaves persisted even with light to medium leafspot.

PI-321675, 'Dapprime', from France had few, coarse, erect stems and a medium amount of soft, basal and cauline leaves. Mature size was 30"-18"x16". Accession had excellent spring growth but was poor by late August. Leafspot was moderate to severe at Beltsville.

## GRASSES

### Dactylis glomerata L.

Eleven accessions from the USSR were grown. They compare as follows:

| PI     | Spring<br>recovery | Stems  | Leaves   | Size        | Leafspot | Vigor | Maturity |
|--------|--------------------|--------|----------|-------------|----------|-------|----------|
| 314656 | E,A                | VF,C,E | VF,S,B&C | 35"-18"x15" | Severe   | Poor  | 7        |
| 315411 | E,A                | M,C,E  | M,S,C    | 42"-30"x18" | Light    | Good  | 7        |
| 315425 | E,A                | M,M,E  | A,S,B&C  | 37"-22"x12" | Light    | Good  | 7        |
| 325287 | E,A                | M,M,E  | F,S,C    | 48"-28"x16" | Moderate |       | 7        |
| 325288 | E,A                | F,VC,E | M,S,C    | 34"-15"x17" | Severe   | Med.  | 6        |
| 325290 | E,A                | M,C,E  | F,S,C    | 43"-26"x13" | Moderate |       | 6        |
| 325294 | E,A                | F,C,E  | M,S,C    | 38"-25"x16" | Moderate |       | 7        |
| 325296 | E,A                | VF,C,E | F,S,C    | 28"-19"x21" | Severe   | Poor  | 7        |
| 325301 | VE,A               | F,M,E  | M,S,B    | 30"-15"x22" | Severe   |       | 7        |
| 325302 | VE,A               | F,C,E  | A,S,B    | 24"-14"x20" | Severe   |       | 7        |
| 325303 | E,A                | F,M,E  | A,S,B&C  | 32"-22"x24" | Severe   | 7     | 7        |

All accessions were variable in vigor. In general, they have no conservation value for the Beltsville area.

### Dactylis glomerata v. hispanica (Roth) Duby

This accession from Iran performed better than other variety hispanica, which have been at Beltsville. It produced a moderate amount of soft basal and cauline leaves. Stems were medium in abundance, fine and erect. By maturity in June, the size of PI-230116 was 33"-15"x14".

### Elymus angustus Trin.

PI-314672 was a rhizomatous perennial grass from Russia that displayed fair to good vigor at Beltsville. Due to the coarseness of the stems and harshness of the leaves its palatability was low. Stems were moderate and erect, bearing a moderate number of leaves. The grass grew well, reaching 54"-30"x30" at maturity in July. Leafspot developed to a moderate extent during the summer.

### Elymus giganteus Vahl.

PI-313965 from the USSR appears to be an excellent grass for conservation use, primarily because it is very rhizomatous and is a good sand binder. Seedling vigor was strong. A few coarse erect stems (diameter 1/2 inch) were produced with a moderate amount of hard, leathery basal cauline leaves. Plant size at maturity was 57"-29"x38" in June. Some of the seed heads were 17" in length and some rhizomes were extended to 42".



## GRASSES

### Elymus junceus Fisch.

PI-314669 was weakened and winterkilled during 1967 - 1968. Replanted in 1968, it was fairly vigorous. Few, erect, medium textured, stems were produced. Moderate numbers of leaves were mostly basal and of medium texture. Maturity was reached in mid-June with a size of 40"-22"x14". Moderate leafspot was noted. This USSR perennial produces short rhizomes.

### Elymus multicaulis Kar. & Kir.

PI-314666 had few, fine, erect stems. Leaves were few, cauline, and medium to soft in texture. Mature size was 34"-22"x18" with full bloom occurring in mid-June. This USSR perennial produces short rhizomes.

### Elymus patagonicus Speg.

PI-343069 from Argentina showed strong seedling vigor but produced few stems and leaves. It developed very severe leaf and stem spot, lost vigor and died in its first year.

### Eragrostis bicolor Nees

PI-299907, from South Africa had excellent emergence and medium vigor. A perennial bunchgrass, it produced moderate numbers of fine, erect stems. Leaves were soft, borne basally and present in moderate numbers. Mature size was 28"-18"x9". This accession appeared to offer good summer grazing characteristics but suffered severe winter injury and died in April 1970.

### Eragrostis obtusa Munro

This accession from Kenya was grown in the greenhouse as Briza minor L., and was reidentified. It is a warm-season perennial. Stems were abundant, fine, and weakly erect. The cauline leaves were soft and moderate in abundance. Plant size was 20"-12"x16" with seed heads lodging. Seed ripening was non-uniform and moderate shattering occurred. Good quantities of seed were produced. Bunchgrass. PI-199091.

### Festuca arundinacea Schreb.

Tall fescue

Six accessions from various origins were grown. They are compared on the following page. PI-264766, PI-269850, and PI-323256 appear to have possibilities. PI-264766 is of particular interest.

### Festuca gracillima Hook. f.

PI-343070 showed a lack of vigor at Beltsville. It deteriorated throughout the growing season of 1970 and was dead by August.

### Festuca ovina L.

Sheep fescue

PI-330706 was direct seeded in 1969. This Iranian accession produced moderate numbers of fine, erect stems. Leaves were soft in texture, basal and abundant. Mature size in June, was 22"-12"x14". Spring recovery was very early and abundant, but the growing became wiry. Variable color was observed, ranging from bluish to green. Subject to light leafspot at Beltsville.

Festuca arundinacea

| <u>PI</u>           | <u>Origin</u> | <u>Growth habit</u> | <u>Stems</u> | <u>Leaves</u> | <u>Vigor</u> | <u>Size</u> | <u>Maturity</u> | <u>Rating</u>                          |
|---------------------|---------------|---------------------|--------------|---------------|--------------|-------------|-----------------|--|
| 264766              | Neth.         | Per-rhiz.           | F-M,C,E      | A,M,B&C       | Excel.       | 43"-18"x26" | 6               | Excellent accession                    |
| 269850              | Tunisia       | Per-rhiz.           | M,F-M,E      | M,M,B&C       | Good         | 38"-18"x20" | 6               | Good                                   |
| 283282              | Morocco       | Per-bunch           | F,F,E        | F,M-H,B       | Poor         | 38"-15"x15" | 6               | Poor leafspot                          |
| 283301              | Tunisia       | Per-rhiz.           | VF,F,E       | VF,M,B&C      | Poor         | 38"-16"x16" | 6               | Poor                                   |
| 316243              | Israel        | Per-rhiz.           | M-A,M,E      | F-M,M,B&C     | Good         | 40"-12"x10" | 6               | Fair                                   |
| 323256<br>'Demeter' | Aust.         | Per-rhiz.           | A,M,E        | A,M,B&C       | Good         | 38"-22"x21" | 6               | Good-but severe<br>leave disease here. |

## GRASSES

### Festuca pallescens (St.-Yves) Parodi

This bunchgrass produced very few stems and leaves. Grown only for one year, it failed to mature, and was nearly dead by mid-August. PI-343071 was obtained from Argentina, and would be better suited to a cooler climate.

### Festuca rubra L.

Two accessions from Spain were grown for three years at Beltsville. They are perennial bunchgrasses.

PI-311406 had excellent emergence. Stems were abundant, medium in texture and erect. Leaves were few, soft, basal and cauline. Mature size was 33"-14"x15", and excessive lodging was noted.

PI-311407 produced a few, fine, erect stems and moderately abundant, soft, basal and cauline leaves. Mature size in June was 18"-11"x10". This accession had poor vigor and was destroyed in 1970.

### Festuca sclerophylla Boiss.

PI-314086 from the USSR was a perennial bunchgrass which grew to a size of 48"-24"x12" at maturity. It produced few stems. They were coarse and erect. Leaves were medium in texture and numbers, borne both basally and on the stem. A few short rhizomes were observed. Vigor was good.

PI-325327, also from Russia produced few, harsh, basal and cauline leaves and few coarse erect stems. Mature size was 45"-22"x10".

Neither accession provided decent ground cover, and both are considered of little value here.

### Festuca sulcata (Hack.) Beck

PI-325328 was a perennial bunchgrass that closely resembled Festuca ovina. Stems were abundant, fine, and erect. The leaves were moderately abundant, medium in texture and borne on the stem and basally. Mature plant size was 22"-10"x10" in June.

### Fingerhuthia sesleriaeformis Nees

PI-196359, from South Africa, is a perennial bunchgrass which seems to be of excellent forage potential. The medium to abundant stems were fine textured and erect. Leaves were abundant, medium in texture and borne basally. Maturity occurred in August. Plant size was 41"-22"x23".

This grass had some light frost damage, but the cover remained dense. The seed had poor fill, however, in an area where good seed can be produced this accession may be of value.

### Gaudinia fragilis (L.) Beauv.

This accession from Portugal is a perennial bunchgrass. It has abundant medium textured, sub-erect stems, bearing soft, very abundant leaves. Plant size was 22"-10"x22" under greenhouse culture. PI-238316 appears to be a short lived perennial that may have use for quick grazing or cover.

## GRASSES

Ischaemum indicum (Houtt.) Merr.

PI-344770 was grown in the greenhouse. It is a sub-tropical pasture grass obtained from Costa Rica, and is perennial and stoloniferous. Leaves were abundant, soft and cauline with a size of 6" x 20". It did not mature after ten months, was distributed to Florida, and was destroyed. Accession forms a dense mat.

Lepturus repens R.Br.

Perennial; native to Australia and the Pacific Islands. PI-200229 originally from Kenya, was a stoloniferous perennial grown under greenhouse culture at Beltsville. Stems were few, medium in size and sub-erect to prostrate in habit. Leaves were few, medium in texture and cauline. Mature size was 15"-12"x25" with stolons to 60". Blooms May and June and sets seed June to August.

Lolium perenne L.

PI-321680, 'Raidor', was a perennial bunchgrass received from France. Stems were few, fine, and erect and leaves were moderately abundant, soft, basal and cauline. Mature size was 18"-6"x7". Bloomed May - June and matured in July. Spring recovery is early and abundant and the accession is subject to light leafspot at Beltsville. 'Raidor' is early.

PI-321681, from France carries the variety name of 'Real' (medium late). Stems were abundant, medium to fine in size and erect. Leaves were moderately abundant, soft, and basal. Mature size was 24"-10"x12". Plants developed ergot the second year in the field and were destroyed. Accession bloomed in June and matured in July.

Lolium remotum Schrank

A leafy annual with slender spikes, spikelets more or less remote; glumes half to two thirds as long as the spikelets; florets 3 - 4 mm. long, plump and awnless. Reported to come from Russia originally and has been noted in North Dakota flax fields as a weed.

PI-283613 from Sweden via Australia was an annual bunchgrass with abundant, fine, erect stems and abundant, soft, cauline and well-distributed leaves. Mature size in June was 22"-14"x22". The accession bloomed March through May under greenhouse culture. This accession was very susceptible to aphids and developed light leafspot.

Lolium rigidum v. rothbollioides Heldr. ex Boiss.

BN-19474 was an annual bunchgrass producing an abundant amount of coarse, erect stems, and a moderate amount of soft cauline leaves. Grown under greenhouse culture, this accession bloomed March through April and matured and died in May. Mature size was 19"-12"x19". Shattering was excessive.



## GRASSES

### Lolium temulentum L.

An annual, originally from Europe, now occurring on the East, West, and Gulf Coast of the United States. Usually found as a weed in grain fields and waste places.

PI-331394 was an annual bunchgrass from Ethiopia that rapidly matured and died at Beltsville. Stems were moderately abundant, medium in texture and erect. Leaves were few, fine and basal - only a few to each plant. Plants were 28"-18"x4" when they matured and died in June.

### Panicum antidotale Retz.

PI-268410, originally from Afghanistan, was a perennial stooling bunchgrass with moderately abundant, medium-sized, erect stems and moderately abundant, soft, cauline leaves. Blooms June and matures in July. Mature size was 72"-60"x66". This accession was variable in that several plants had bulb-like buds on the lower nodes and crown and two plants were very tall, nearing 8 feet. Spring recovery was abundant and varied over three years field evaluation from moderately early to late.

PI-269390, originally from Afghanistan was a perennial stooling bunchgrass with a moderate amount of fine, erect stems and abundant, soft, cauline leaves. Mature size was 72"-60"x52". Spring recovery was late and abundant. Bloomed June and matured June and July.

PI-331180 from Argentina was a perennial stooling bunchgrass with a moderate amount of coarse, erect stems and a moderate amount of medium, cauline leaves. Bloomed July and matured in July to September. Mature size was 80"-60"x45". Winter injury was moderate at Beltsville and spring recovery was late and moderately abundant. Accession subject to light leafspot at this location.

PI-338654, was a perennial, stooling bunchgrass from Morocco with abundant, coarse, erect stems, and abundant, medium textured, cauline leaves. Mature size was 85"-72"x36". Bloomed July, matured July through August. Subject to severe winter damage and leaf disease at this location.

### Panicum clandestinum L.

BN-18572 (MS-1737) received from Mississippi PMC was a perennial stooling bunchgrass with abundant, coarse, erect and sub-erect stems. Leaves were moderately abundant, medium in texture, and cauline. Mature size was 42"-37"x40" and the accession was fairly open. Spring recovery was moderately early and abundant. The accession developed moderate leafspot at this location.

### Panicum miliaceum L.

PI-289324 was a quick maturing annual bunchgrass that performed extremely poorly at Beltsville. Plants produced only single stems and a few leaves per plant. Mature size was 12"-6"x2". Bloomed May and matured in June. Subject to severe leafspot at this location.

## GRASSES

### Pappophorum pappiferum (Lam.) Kuntze

PI-331155 was a warm season perennial bunchgrass with few, coarse, erect stems and few, soft cauline leaves. Mature size was 52"-36"x12". Blooms July and August, matures August and September with very fluffy spikes. This accession was a very prolific seeder but winterkilled at Beltsville.

PI-337554 was a warm season perennial bunchgrass with few, coarse, erect stems and a medium amount of soft to medium textured cauline leaves. Mature size was 56"-37"x16". Bloomed and matured July to September. Much leafier than PI-331155. Winterkilled at this location.

### Phalaris aquatica L.

PI-306732 was a rhizomatous, short-lived perennial with few, fine, erect stems, and very few, soft, cauline leaves. Mature size was 25"-17"x10". Bloomed June and matured in July. A worthless accession.

### Phalaris arundinacea L.

Sixteen clonal selections were made from PI-234694, PI-234695, PI-234696, PI-234697, PI-235547, and BN-17696 in an attempt to obtain dwarf, seed producing plants. 'Kent's dwarf' was designated as the standard for comparison.

None of the clones were acceptable when compared with the standard and were discarded.

### Phalaris truncata Guss.

PI-316336, a perennial from Algeria with few, medium-sized erect stems and few, soft, basal and cauline leaves. Mature size was 42"-18"x6". Plants bloomed in June and matured in August. A poor accession making sparse spring regrowth the second year in the field.

### Phalaris tuberosa v. stenoptera (Hack.) Hitchc.

PI-202480 originally from Morocco was a slowly rhizomatous perennial with few, coarse, erect stems and few, soft, cauline leaves. Mature size was 38"-20"x10". Poorly suited for this location as the accession produced poor cover, was subject to moderate leafspot, and went dormant during the heat of the summer. Summer heat and drought damaged the plants with the result that most of the accession was winterkilled.

### Poa ampla Merr.

PI-284249, was a perennial bunchgrass with few, fine, erect stems and abundant, medium-textured, basal and cauline leaves. Mature size was 30"-14"x9", providing limited cover. Bloomed May and set seed in June. Severe summer heat and drought damage weakened the plants, causing them to winterkill.

## GRASSES

### Poa bulbosa L.

Poa bulbosa, a perennial bunchgrass, introduced from Europe is not at all adapted to summers at this location. Plants grow well until early July when temperatures are high - becoming dormant back to the bulbous base and eventually dies.

PI-312469, PI-314162, PI-314163, and PI-314472 from Russia, all had few, fine, erect stems and few, soft, basal leaves in early June before being dormant. Mature sizes varied greatly. Blooms early June and matures mid-June. A very poor species for this area.

### Poa iberica Fisch., Mey. & Ave.-Lall.

PI-325462, a perennial bunchgrass from the USSR performed poorly at Beltsville. Few, coarse, erect stems and a moderate amount of medium textured leaves. Basal and a few cauline leaves were produced. Mature size was 31"-20"x10". As with many Poa's, the summer meant heat, drought damage and dormancy. This accession lost 60 to 80 percent of its leaves by August. Seed heads are proliferous with germination occurring while still on the head. Accession is extremely susceptible to powdery mildew and leafspot.

### Poa longifolia Trin.

PI-314103, from Russia, was a perennial bunchgrass with few, medium sized, erect stems and abundant, soft, basal leaves. Poorly suited for Beltsville climate, 80 percent of this accession has been lost over a three year period. Mature size was 30"-18"x8" the second year in the field.

### Poa marginata Ovczinn

PI-283958 was a poorly adapted perennial bunchgrass from the USSR producing very few leaves and stems. Plants made less and less spring regrowth each year until finally destroyed. Mature size was 23"-7"x3", a very poor accession here.

### Poa pilcomayensis Hack.

PI-337592, a perennial, stooling bunchgrass from Argentina was unusual in that it thrives during the summer heat at Beltsville. It produced abundant fine, erect stems and a moderate amount of soft, basal and cauline leaves. Mature size was 18"-15"x10" and it bloomed in May and set seed in mid-June. Lush green growth persisted throughout the summer.

### Poa pratensis L.

PI-330632 from Poland was a rhizomatous, sod-forming perennial. Stems were abundant, fine, and erect and leaves were few in number, basal, cauline, and soft. Mature size unmowed and laterally restricted from spreading was 22"-9"x18". This accession was unusual in that it performed quite well during the heat of the summer. Bloomed May and matured in June.



## GRASSES

### Sorghastrum nutans (L.) Nash

BN-14671 (MS-228) received from Mississippi PMC was a very columnar and dense accession. Stems were abundant, coarse and erect and leaves were moderately abundant, harsh, and cauline. Mature size was 65"-48"x27". Plants bloomed in August, matured in September and were subject to light leafspot.

### Sporobolus marginatus Hochst. ex A.Rich.

PI-331391 was a very poor accession with few leaves and stems. All stems were sub-erect leaving an open area in the center of each plant. Stems were medium in size and leaves were medium in texture, basal and cauline. Mature size was 38"-14"x20". Bloomed June to July and matured in September. Winterkilled at Beltsville.

### Zoysia japonica Steud.

PI-324185, PI-324186, and PI-338563 through PI-338582 (twenty accessions) from Korea were grown in comparison plots. All were winter hardy, rhizomatous and stoloniferous. Stems were abundant, fine and erect to prostrate. Leaves were abundant to medium-abundant, soft, and cauline. Ratings are based on spread and fill-in for one and one-half years. Difference in spring recovery dates are showing up, but the variation is not great.

- PI-324185 - Most dense of all accessions - excellent accession
- PI-324186 - Poor accession - poor density
- PI-338563 - Poor accession - very slow and open
- PI-338564 - Poor accession - slow, few rhizomes and stolons
- PI-338565 - Medium accession - few stolons, spotty cover
- PI-338566 - Poor accession, taller than most, fewer leaves
- PI-338567 - Medium accession - spotty cover
- PI-338568 - Medium accession - variable spread
- PI-338569 - Good accession - vigorous, good spread
- PI-338570 - Poor accession - poor vigor, spotty cover
- PI-338571 - Poor accession - few stolons, spotty cover
- PI-338572 - Medium accession - moderate spread, tall leaves
- PI-338573 - Medium accession - moderate spread
- PI-338574 - Excellent accession - rapid cover
- PI-338575 - Excellent accession - rapid cover, many stolons
- PI-338576 - Poor accession - slow and open
- PI-338577 - Good accession - medium spread, attractive turf
- PI-338578 - Good accession - medium density, good spread
- PI-338579 - Poor accession - slow and open
- PI-338580 - Medium accession - spread medium
- PI-338581 - Good accession - but erect leaves give weedy appearance
- PI-338582 - Excellent accession - leaves prostrate, good spread



# KEY TO SYMBOLS ON TABLES

| PI     | Stems           |                 | Leaves       |                  |          | Mature Size         |                            |
|--------|-----------------|-----------------|--------------|------------------|----------|---------------------|----------------------------|
| Number | Number          | Thickness       | Habit        | Number           | Texture  | Location            | Plant Height x Plant Width |
|        | A-abund.        | C-coarse        | E-erect      | A-abund.         | C-coarse | B-basal             |                            |
|        | M-mod.          | M-med.          | SE-sub-erect | M-med.           | M-med.   | C-cauline           |                            |
|        | F-few           | F-fine          | P-prostrate  | F-few            | S-soft   | WD-well distributed |                            |
| <hr/>  |                 |                 |              |                  |          |                     |                            |
|        | <u>Bloom</u>    | <u>Maturity</u> |              | <u>Notes</u>     |          |                     |                            |
|        | Numerical month | Numerical month |              | Self explanatory |          |                     |                            |

NOTES & COMMENTS

LEGUMES & OTHER

Acer ginnala v. semenovii

A shrub somewhat smaller than Acer ginnala. Leaves are also smaller with deeper and narrower lobes. It is native to Turkestan and hardy to Zone IV.

PI-293754, from the USSR, reached 20" x 10" before being damaged and later destroyed.

Acer morrisonense Hayata

PI-324941 was not hardy at this location and winterkilled.

Akebia quinata rosea

Akebia quinata (Houtt.) Decne. is a twining glabrous shrub to 10 m. It is monoecious with flowers borne in axillary racemes. The flowers are slender-stalked and fragrant. The pistillate flowers are purplish-brown and are borne near the base of the raceme. The staminate flowers are rosey-purple and smaller than the pistillate and are borne towards the end of the raceme. It is native from Central China to Japan and Korea, and flowers in spring.

BN-11051, Akebia quinata rosea was received from Missouri PMC as cuttings. No authority was found for the sub-species rosea and its correctness is questioned. This accession formed a complete vigorous vine mat to 20 feet in the cold frame. This accession has since been destroyed.

Alnus nepalensis D. Don

Alnus nepalensis is a tree, native to the Himalayan Region with elliptic-lanceolate leaves to 7 inches in length.

PI-307197 was apparently not adapted to the summer heat at this location and died its first summer in the field.

Alysicarpus glumaceus DC.

The collector of this seed had the following to say about it:

"Perhaps the most promising of East Africa's legumes. It is palatable, drought resistant, and a very heavy seeder. It grows on almost any soil type, is deep rooted, and it nodulates well."

PI-193734 was grown over the winter months in the greenhouse at Beltsville and later moved to the cold frame. It had few, fine, sub-erect stems and a moderate amount of cauline, well-distributed leaves. The leaves were moderately harsh in texture and the branches rooted when covered with soil. The plants begin to get woody during their second year and were 32" x 70". Plants bloomed outside from early April to late June, but set no seed. The accession winterkilled during its second year outside.

## LEGUMES & OTHER

### Astragalus alpinus L.

A perennial legume 8.30 cm. tall with slender underground shoots. The corolla is azure in color with a dark blue keel, and flowers June to July. It is native to Alpine and sub-Alpine meadows in mountain tundra, chiefly in the high mountain and sub-Arctic zones. It is also found descending along rivers below the timber line, as well as, in open deciduous forests and in shady juniper woods. It is found in the USSR, Scandinavia, Asia, Europe and mountains of North America.

Seed of PI-344564 produced only one seedling, very much like clover in appearance, which died two and one-half months after planting in the greenhouse.

### Astragalus boeticus L.

Andalusian astragalus

An annual with short upright stems, pinnate leaves, and pale yellow flowers in a crowded raceme. Blooms March to April and occurs in open fields in the Mediterranean Region.

PI-233225 was a solitary annual legume with few, coarse, sub-erect stems. It had few, soft, cauline leaves and reached 7" x 12". Blooming took place from early to late June, when it died. While maturing, the seed pods fall, but the seeds are not dispersed. It was subject to severe aphid infestations at Beltsville.

### Astragalus cicer L.

PI-325205 was a rhizomatous perennial with abundant, medium-sized, sub-erect to prostrate, viney stems and abundant, soft, well-distributed, cauline leaves. Mature size was 14" x 30". Best growth was observed from spring to mid-summer.

Bloomed June and matured July and August. Blooms are whitish. Spring regrowth is moderately early and abundant at this location.

### Astragalus glycyphyllos L.

PI-325207 was a perennial with abundant, medium to coarse, prostrate, vine-like stems. Leaves were abundant, soft and cauline. Mature size was 16" x 45" and it bloomed in May and June with flowers ranging from whitish-yellow to reddish. Matured in July. This accession suffered some summer heat and drought damage at this location.

### Astragalus glycyphyllos L.

A perennial legume to  $3\frac{1}{2}$  feet with prostrate to ascending glabrous stems. Flowers are yellow; pods are cylindrical, acute and glabrous. Origin is Europe and Western Asia.

Seed of PI-344566 from Czechoslovakia was dead upon arrival at Beltsville.

## LEGUMES & OTHER

### Astragalus hamosus L.

An annual with short dense heads of five to ten, yellowish-white flowers on very short pedicels. Leaves are pinnate, glabrous above. It is occasionally found in natural pastures, but is better suited for cultivation. Occurs in regions with a Mediterranean-continental climate, along the coast, usually in dry sandy places, adapted to areas of 23 inches average rainfall with winter snow, and summer drought. Seed of PI-168551 was dead upon arrival at Beltsville.

### Astragalus norvegicus Weber

PI-345960 was not at all acclimated to the climate at Beltsville and died after several months in the field. Ants seemed particularly fond of it.

PI-345961 was received from the Botanical Garden of the University of Oslo, Oslo, Norway. The seed was of poor quality, and those plants that did emerge and survive were transplanted to the field where they fell victim to a hot droughty period in July at Beltsville.

### Astragalus racemosus Pursh.

BN-9705 from Oklahoma is a very poor accession with few leaves and stems that is very susceptible to summer heat and drought damage. This accession defoliated and died prior to blooming.

### Astragalus sinicus L.

Genge clover

A short-lived, wet-land perennial, commonly grown in rice fields in Japan and China. It is a fast growing green manure plant, usually fall planted. It is also grazed, but it is said to be dangerous when eaten in large quantities.

PI-150557 was a solitary perennial grown under greenhouse culture. It was prostrate in habit and had very few, fine stems and few, soft cauline leaves. Mature size was 3" x 18". It bloomed and set seed from late August to late October at this location. Uniformity of ripening and seed production was poor.

### Astragalus sp.

PI-202149 was a solitary annual with few leaves and few coarse, prostrate stems. Mature size was only 1" x 7". The accession grows well early in the growing season, but does poorly during the heat of the summer. It matured in mid-August. The sequence of flowering and setting seed takes place very rapidly followed immediately afterward by the death of the plants.



## LEGUMES & OTHER

Cotoneaster dielsiana E. Pritz.

Dielsiana cotoneaster

A shrub to 2 m. with slender spreading and arching branches. Young branches are densely pubescent. Leaves are slightly pubescent and dark green above and yellowish or grayish tomentose beneath. It is densely studded with scarlet fruit in the fall. Hardy to Zone V. Flowers pinkish.

PI-297587 was received as seed from Czechoslovakia. It was scarified for 90 minutes in concentrated H<sub>2</sub>SO<sub>4</sub> prior to being fall planted in the cold frame. This proved to be a very successful method in breaking dormancy in this accession.

The accession was observed for five years and destroyed due to open and straggly habit. Size of the five-year-old plant was 36" x 50".

Cotoneaster divaricata Rehd. & Wils.

Spreading cotoneaster

A deciduous upright shrub to 2 m. with slender spreading branches. Leaves are lustrous dark green above, lighter and slightly pubescent to glabrous beneath. Flowers are pink, short pedicled, and usually in three-flowered cymes. It usually flowers profusely in June and bears fruit in September. It is native to Central and Western China and is hardy to Zone V.

PI-297588 is rather easily propagated by cuttings. Size in three years from cuttings is 22" x 36". It is a dense shrub and makes an attractive ornamental. Seed production to date has been low.

Cotoneaster microphylla Wall. ex Lindl.

Rockspray cotoneaster

A low evergreen shrub to 1 m. with spreading branches forming dense masses with small lustrous leaves. Leaves are lustrous and dark green above, glaucous and densely pubescent beneath. Flowers are solitary and white, blooming in May and June, and bearing fruit in September and October. It is native to the Himalayas and is hardy to Zone V.

PI-285323 from Nepal, was received as plants from the Maryland Glenn Dale Plant Introduction Station. It is very dense and hardy, and is low and slow growing with many branches. Size in five years was 11½" x 42". Size when received was 6" x 22". It prefers open areas and loses its ornamental value when in heavy competition with large grasses.

PI-274972 from India via Glenn Dale, appears somewhat slower growing than PI-285323 and slightly more prostrate. Present size is 4" x 20" after five years of growth.

Crotalaria grahamiana Wight & Arn.

Seed of PI-238265, a native legume to East India, was of poor quality; it did not germinate.

## LEGUMES & OTHER

### Cytisus mollis (Cav.) Pau

PI-338638 from Morocco was grown from seed at Beltsville. Size after one growing season was 18" x (3"-10"). Plants were solitary and erect. Trifoliate leaflets borne on a petiole were whorled on the branches. Side branching was good. All plants winterkilled at this location.

### Desmodium canadense DC.

PI-263237, a solitary perennial from Spain, provided a moderated amount of coarse, erect to sub-erect stems and few medium textured (leathery) cauline leaves. Mature size in August was 30" x 30". Plants bloomed July and August with reddish-purple flowers. A poor accession with low vigor at Beltsville.

### Dorycnium rectum (L.) Ser.

A sub-shrub to 1 m., villous or glabrescent. Leaflets obovate,  $1\frac{1}{2}$  - 2 cm. long; petiole to 1 cm. with stipules from 4 - 10 ml. Pods are cylindric, glabrous. Native to the Mediterranean Region.

PI-274460 from Greece was perennial under greenhouse culture at Beltsville with few, coarse, succulent stems. Leaves were moderately abundant, soft, cauline, and well distributed. Habit was erect to sub-erect and the plant was very aggressive making rapid and abundant regrowth, after being cut. It bloomed but set no seed in late June in the greenhouse and reached 52" x 70" between cutting periods. Flowers were white and in clusters. Several plants were moved to the cold frame to check winter hardiness; they winterkilled.

### Euonymous fortunei (Turcz.) Hand.-Mazz. 'Longwood'

A climbing or trailing shrub with rootlets. Leaves vary in shape and are serrulate with veins slightly raised on top and distinctly veined beneath. Flowers and fruits are very similar to Euonymous japonica L., blooming in June and July, and bearing fruit in October. Flowers are greenish-white and borne in dense five to twelve flowered cymes. Fruits are orange, native to China, it is the hardiest of the evergreen Euonymous (Hardy to Zone V) and is suitable as a ground cover for covering walls and tree trunks.

PI-275073 from Japan was received as plants from the Glenn Dale Plant Introduction Station. It is easily propagated from cuttings. In general, this accession was poor at Beltsville with poor to fair vigor and slow growth. Most plants had spread to only 10 inches in five years. Only one fairly vigorous plant to 18 inches was noted.

## LEGUMES & OTHER

### Gypsophila repens 'rosea'

Rosy creeping gypsophila

A ground cover to 6 inches in height with very narrow leaves less than 1 inch long. Flowers are rose in color in few flowered panicles and bloom from early June to mid-July. It is native to the Alps and Pyrenees Regions. It is a trailing or prostrate plant preferring full sun and dry limestone soils. A very outstanding ground cover when in flower.

BN-12476 and BN-12477 were received as tall and short selections and grown for comparison. No difference was observed in plant size and the vigor of both accessions was quite poor at Beltsville.

### Hedysarum sp.

Perennial herbs or shrubs (mostly herbaceous) found in temperate regions of the Northern Hemisphere. Leaves are odd-pinnate with opposite leaflets. Flowers vary from white to purple and are borne in axillary racemes.

PI-314695 from the USSR did poorly at this location. It had few stems and only a moderate amount of well distributed leaves. Habit was erect to sub-erect and largest size reached was 7" x 14". The plants were so severely damaged by heat and drought during the summer that they winterkilled.

### Helianthemum nummularium (L.) Mill. 'Fireball'

A sub-shrub to 35 cm. with ascending stems. Leaf shapes vary from broad-ovate or elliptic to lanceolate. Leaf margins are flat or slightly revolute. Leaves are green and hairy or slightly tomentose above (rarely glabrous) and grayish hairy beneath. Flowers May to July. This ground cover is native to Europe and Western Asia.

BN-12897 produced red flowers. It eventually died due to soil and climate after being close to 14 inches wide.

### Ilex cassine L.

Dahoon

A shrub or tree to 12 m. found from Virginia to Florida and Louisiana. It is hardy to Zone VII.

PI-254592 winterkilled at Beltsville. It grows well during the first growing season reaching 12 inches in height. Leaves are willow-like and the plant was quite open.

### Ilex crenata Thunb. 'High light'

Much branched shrub, rarely a small tree, to 7 m. Leaves are small, lustrous dark green above and glabrous. It blooms May and June and sets small black fruit in October. It was introduced from Japan in 1864 and is hardy to Zone VI. Ornamental.

Cuttings of PI-316588 from the National Arboretum failed to root using #2 Hormodin. Cuttings were received in November.



## LEGUMES & OTHER

### Lathyrus pratensis L.

This species is native to Europe, Asia Minor, and the USSR occurring in meadows and forested areas. It is claimed to be eaten by all types of livestock with highest palatability when cut for hay.

PI-308028 was reported in our 1968 annual report as being dead. Actually it went completely dormant during the hottest summer months giving every indication of being dead.

It produced an excellent stand during the spring and early summer reaching 50 inches in width and sending out rhizomes to 5 feet. Height remained about 8 inches. Stems were very abundant, fine and winged. Leaves were abundant, soft, cauline and well distributed. It is perennial and very rhizomatous. Habit is sub-erect to prostrate. It blooms from early May to early August if not damaged by excessive heat and drought. Flowers are yellow.

### Lespedeza bicolor Turcz.

A shrub to 3 m. with leaflets in threes; broadoval to obovate in shape. The middle leaflet is long stalked. Flowers are about 1 cm. long and borne on a slender stalk in axillary racemes. Flowers are rosy-purple and occur in August and September. Primary conservation use is as a wildlife food for birds, especially quail. Originally native from Northern China to Manchuria and Japan. Hardy to Zone IV.

PI-286476 and PI-295318 winterkilled to the ground line at Beltsville and make yearly regrowth to 4 to 6 feet. They bloom in mid to late September - too late to set seed.

PI-295319 is severely winter damaged; even affecting spring regrowth. Plants have remained small for the five years that they have been observed. Seven of 14 plants have winterkilled.

BN-14895 winterkills to the ground level, but occasionally sets a light seed crop. Bloom date is mid-September.

None of the above Lespedeza bicolor accessions were close to equaling the old BN-2279, 'Natob', which produces a heavy seed crop and is not nearly as subject to winter damage.

### Lespedeza bicolor f. acutifolia Matsum.

PI-286477 winterkills to the ground line at Beltsville, but does bloom early enough to set a light seed crop. It blooms from mid-August to mid-September. Forty inches is the maximum height obtained by this accession in a growing season.

### Lespedeza cyrtobotrya Miquel

A shrubby perennial with trifoliate leaves, and conspicuous lavender flowers. A drought resistant legume adapted to acid soil of low fertility giving good response to phosphate fertilizers. Used for pasture, soil improvement, and as a green manure. Native to temperate East Asia.

PI-295321 and PI-295323 both winterkill to the ground level at Beltsville and do not bloom at this location. Maximum yearly height is 36 inches.



## LEGUMES & OTHER

### Lespedeza daurica Schindl.

PI-89107 is a solitary herbaceous perennial sub-erect to prostrate in habit with few, medium coarse stems. Leaves are moderately abundant, well distributed and medium in texture. Height of plant was 8 to 10 inches with a 24 to 30 inch spread. This accession bloomed from mid-July to early September.

### Lespedeza maximowiczii Schneid

A leguminous shrub to 4 m. Leaves are elliptic ovate to obovate, and pubescent underneath. Flowers are purple, 1 - 2½ cm. long, borne on slender racemes. Flowers July to August and bears fruit August to September. Native to Korea and hardy to Zone V.

BN-5773 winterkilled at this location.

### Lespedeza thunbergii (DC.) Nakai

A shrubby perennial legume to 6 feet. Primary value is wild bird food and cover in the southern United States.

PI-295324 winterkills to the ground line at this location. Accession is variable in size and habit and does not set seed at Beltsville.

PI-295327 blooms in September. It winterkills to ground level and sets no seed in Beltsville.

### Ligustrum sp.

BN-14024 was originally purchased by New York PMC from a commercial source as Ligustrum obtusifolium regelianum. It was planted and evaluated in New Jersey where this selection was made for its upright growth habit, compact branching and profuse bearing of fruit capabilities.

No value over commercial plant was noted, plants were destroyed.

### Lotus arenarius Brot.

A winter annual, native to the Iberian Peninsula and not found in Central Europe.

PI-311425 from Spain was a low (6 inches) mat-forming legume with a moderate amount of fine, prostrate, reddish stems. Leaves were few, soft, cauline and well distributed. It was solitary in habit and spread to 40 inches. It did not bloom at Beltsville and winterkilled.

### Lotus corniculatus L.

A fine-stemmed, leafy, perennial, with a strong tap root. Stems are usually procumbent with sessile leaflets in fives. Flowers are yellow, sometimes red. Pods long and narrow. Fairly hardy, thriving in water-logged areas and better adapted to salinity and high temperatures than most Trifolium spp. Not aggressive and easily crowded out. Attacked by few pests and diseases. Native to temperate Europe and Asia. Used widely for pastures and hay in North America, South Asia, and South Africa.

## LEGUMES & OTHER

PI-246730 was a good, prostrate, mat-forming accession received from Spain. It is a rhizomatous perennial with moderately abundant, fine stems. Leaves are abundant, soft, cauline, and well distributed. Height is 4 inches to 5 inches and it had a 20 inch spread over a period of two years. It blooms from mid-June to late July and had an orange-yellow flower.

### Lotus ornithopodioides L.

A stout annual legume with large rhomboidal leaflets and small yellow flowers in clusters of two to five on long peduncles. Native to sandy fields and grassy places in the coastal regions of the Mediterranean countries, the Caucasus and Asia Minor.

BN-18003 from Greece was solitary with a moderate amount of medium to fine textured, sub-erect to prostrate branches. Leaves were soft in medium quantities, cauline and well distributed. Mature size was 8" x 9". It bloomed with yellow flowers in late May, matured in late July, and died in late August.

### Lotus pedunculatus Cav.

In Hawaii it grows well with Pangola and Kikuyu grass where it stands medium acid soils. Little seed produced in Hawaii below 1,000 feet.

It is neither cold nor drought resistant. It is tolerant of brackish water and can withstand considerable inundation. Three years is required to reach maximum production. It is readily eaten by all classes of stock.

PI-194059 is a rhizomatous and stoloniferous perennial with an abundant amount of fine sub-erect and prostrate stems. Leaves are moderately abundant to abundant, soft, cauline, and well distributed. It formed a solid mat within two years that was held at 40 inches. through cultivation. Height varied from 7 inches to 15 inches. Regrowth is early and abundant. It blooms in June and sets seed in July.

PI-202383 was a rhizomatous perennial with abundant, medium sized sub-erect and prostrate stems with abundant, soft, cauline and well distributed leaves. This accession appears very promising, forming a solid mat 12" x 40", where it was restricted by cultivation. Growth was very dense, uniform and succulent throughout the heat and drought of the summer months. Spring recovery is early and abundant at Beltsville and no disease problems were observed. It appears that this accession is quite drought resistant.

### Lotus purshianus (Benth.) Clements & Clements

A glabrous perennial with stems branched at the base. Found in sandy soil mostly near the coasts of Georgia, Florida, and Alabama.

BN-19328 was a very open, solitary plant with few coarse to medium, sub-erect and prostrate stems. Leaves were few, soft, and cauline. Plants were very pubescent and matured in July. Mature size was 14" x 21". BN-19328 was an annual.

## LEGUMES & OTHER

### Lupinus albus L.

An annual about 2 to 3 feet in height with palmate leaves of five to seven obovate-oblong leaflets and large white flowers on erect stems. Often grown as a fodder plant for green manure; adapted to fertile, neutral soils and warm climates. Cultivated in the warmer parts of the Mediterranean Region, North Africa, Asia Minor, Argentina, and occasionally in Western Australia.

PI-316287, a solitary annual was received from Portugal via Australia. It had few, coarse, erect stems and was shallow rooted. Leaves were few, palmate, soft and cauline. Mature size was 23" x 12". This accession, planted on January 15 in the greenhouse bloomed late March to late April and bore fruit during June. Seeds are very large, about 10 mm.

### Lupinus angustifolius L. 'Blanco'

A tall, erect annual, densely leafy, with dense racemes of blue, purple or white flowers. Native to the Mediterranean Region; cultivated in Europe, USSR, South Africa, United States and Australia for stock feed and soil improvement. Plants reseed readily and a stand usually maintains itself for many years. Grazing stock can be adversely affected by Lupines under certain conditions.

BN-10729 was received as commercial seed and planted in mid-January in the greenhouse. Stems were few, coarse, and erect. Leaves were few, soft and cauline. Mature size was 60" x 14". This accession was very susceptible to spider mites that defoliated the plant. It is an annual, blooming in June with pinkish-white flowers. The accession set no seed.

BN-10730, 'Florida', was also grown from commercial seed. It was an erect solitary annual with few, coarse stems and few, soft, cauline leaves. Mature height and spread were 48" x 10". Flowers were pinkish-white. Plants bloomed in June, and matured from mid-June to mid-July.

BN-19021 from Morocco was an erect, solitary, annual with few, coarse stems and few, soft, cauline leaves. Mature size was 55" x 14". Flowers bloomed in June and were pinkish-white. It set seed in July. Like BN-10729 this accession was also extremely susceptible to spider mites.

### Lupinus hirsutus L.

An annual to 2 feet with blue flowers. The flower keel is usually tipped with white. Blooms July - August. Pods are large with large seeds. Native to Southern Europe.

PI-338647 was an erect, solitary annual with few, coarse stems. Leaves were few, soft, and cauline. Mature size was 24" x 14". This accession was planted on January 15, in the greenhouse and bloomed in June.



## LEGUMES & OTHER

### Lupinus luteus L.

Yellow lupine

An annual to 2 feet with lanceolate, acute leaflets in groups of seven to ten. Flowers are yellow, fragrant and in verticillate whorls on long pubescent stalks. Blooms June to July. Native to Southern Europe.

PI-289173 was an erect, solitary annual with few, soft, cauline leaves. Mature size was 23" x 8". It bloomed in late May and set seed in June. Received from Hungary via Australia. Greenhouse grown.

PI-316288 was also grown under greenhouse culture at Beltsville. It was an erect, solitary, annual with few, coarse stems and few, soft, cauline leaves. Mature size was 14" x 8". It bloomed from late May to late June. Seed was collected from early June to late July.

### Medicago truncatula v. longispina Urb.

PI-198662 from Australia was a solitary annual with abundant, medium, sub-erect and prostrate stems in a rosette at the soil surface. Leaves were abundant, soft, cauline, and well distributed. Mature size was 10" x 72", forming in a solid mat. This accession was planted in October and grown in the greenhouse. It bloomed from mid-February to mid-April and matured in mid-May. Flowers were yellow and it is self-fertile. It is subject to excessive shattering, but is a good seed producer. All plants appeared identical prior to maturity. At that time, it was noted that there were two distinct types of burrs present. It is quite probable that the accession is mixed.

### Ononis arvensis L.

A shrubby legume to 2 feet with oblong lanceolate leaves and rose to white flowers (usually in twos). Usually blooms in summer and is native to Europe

PI-325449, received from the USSR, was solitary and erect to sub-erect in habit. The few, medium-textured stems originate in a rosette pattern at the plant base. This accession had a moderate amount of soft, succulent, glandular, viscid, cauline leaves with serrated margins, mostly in ranks of two. Bloomed mid-June to late July with pinkish-white flowers, but set very little seed in the greenhouse.

## LEGUMES & OTHER

### Ornithopus sativus Brot.

Serradella

A small, semi-viney, annual herb, somewhat similar in growth habit to vetch. It is a native legume of the Atlantic and Mediterranean Regions of Spain and Morocco, but does not occur in the interior of Spain. It is adapted to moist, sandy soils of slightly low pH and a cool growing season. It is grown for forage and green manure mainly in Southern and Central Europe, in the south as a winter annual and in the north as a summer annual. Other countries have reported that it might be of value as a catch crop giving high protein and mineral returns in the autumn and good soil protection in the winter.

PI-284140 from Portugal via Australia was a solitary prostrate annual with a medium amount of coarse stems. Leaves were soft, abundant, cauline and well distributed. Bloomed in May and bore fruit in June. Poor quality forage.

### Parochetus communis Buch. & Ham.

A low, creeping, and quick growing plant found at high elevations throughout Asia. Considered a promising pasture and ground cover plant in high country. It is palatable and grown well with Paspalum spp., Pennisetum clandestinum, Cymbopogon confertifolius, and Themeda tremula. Probably unsuitable in mixtures with tall grasses.

PI-199353, received from Kenya, was a very stoloniferous prostrate, perennial with abundant, soft, cauline leaves. Roots were fine, fibrous and deep. It bloomed from early December to early March in the greenhouse and set a good amount of seed, although shattering was excessive and the uniformity of ripening was poor. Flowers were light blue and resembled pea flowers in shape. A possible substitute for strawberry clover. Mature size was 4" x 40".

### Trifolium africanum Seringe in DC.

Erasmus clover

A low growing, perennial species with long runners rooting at the nodes. Occurs in areas of heavy black soil in moist situations and is native to South Africa. It is a useful fodder species suitable for grazing, but procumbent growth makes it unsuitable for cutting as hay.

PI-300146, from South Africa, appeared to be a very promising accession at Beltsville. It seems best suited for the Pacific Northwest and Hawaii, where winters are not too severe and the summer heat will not cause it to go dormant as it does in Beltsville. It is a cool, temperate perennial, prostrate in habit with abundant, medium-textured, stoloniferous stems. Leaves are soft, abundant, cauline and well distributed. Those plants grown in the greenhouse were susceptible to aphids and spider mites while those plants in the cold frame were not infested. Little seed was produced at either location and is thought that this accession is self-incompatible. It forms a dense mat 9 inches deep and was confined to a 50 inch spread. Flowers are a brilliant crimson color and do not reflect as they mature.

## LEGUMES & OTHER

### Trifolium agrarium L.

A more or less appressed annual or biennial. Native to Europe, eastward to the Caucasus and Asia Minor. Naturalized in North America along roadsides, in dry fields, and waste places.

BN-9593 from Canada was solitary with a moderate amount of coarse prostrate stems. Leaves were few, soft, and cauline. Flowers were yellow and it bloomed mid-July to mid-September in the greenhouse. The stipules make the stems appear flat. Leaves are two-ranked. Mature size was 6" x 33".

### Trifolium cf. balense Boiss.

BN-10945 was a solitary annual with an abundance of coarse to medium, sub-erect, and prostrate stems. Leaves were moderate to abundant, soft, and cauline. Mature size was 10" x 20". Bloomed in June and set seed in July. Flowers were pink to almost white in color.

### Trifolium cherleri L.

Cupped clover

A hairy annual plant with prostrate stems. Flowers are whitish in globose heads. Native to the Mediterranean Region. Found in dry sandy places. This species has a wide range of maturity types and is particularly promising in low rainfall areas of Western Australia where it seeds readily, regenerates and spreads.

PI-284013 from Portugal via Australia was grown under greenhouse culture at Beltsville. It was a solitary annual with a moderate amount of fine sub-erect stems with few, soft, cauline, well distributed leaves. Plants must be kept dry. Mature size was 5" x 18". White flowers bloomed in mid-May and matured in mid-June.

PI-284020 was overwatered and died.

### Trifolium echinatum v. carmeli (Boiss.) Gib. & Belli

PI-258402 was a solitary annual with few, medium-textured, erect to sub-erect stems with few, soft, cauline leaves. Mature size was 10" x 15". White flowers. Bloomed late May and matured in early July.

PI-283010 had a few more stems than PI-258402, but was similar in all other respects. Mature size was 10" x 17". Bloom dates corresponded with PI-258402.

### Trifolium glomeratum L.

An annual native to New Zealand. Found in dry places and pastures; extending into modified low tussock grassland.

PI-120230 from Turkey was a deep tap-rooted, solitary annual. Stems were sub-erect, medium in size and present in moderate amounts. The moderate numbers of leaves were soft and cauline. Flowers were white and the accession bloomed in June in the greenhouse. Mature size was 9" x 36".



## LEGUMES & OTHER

PI-120235, also originally from Turkey, was a better accession. Stems were abundant, fine, sub-erect, and prostrate. Leaves were soft, cauline, well distributed and present in moderate amounts. Mature size was 7" x 38". This accession was a solitary annual and deeply tap rooted. Bloom date was late June at Beltsville.

Trifolium hirtum All. 'Kondinin'

PI-323259 was a solitary annual, sub-erect in habit with a moderate amount of coarse stems. Leaves were medium to few in abundance, soft, cauline, and well distributed. Mature size was 20" x 45". Self-pollinated. Bloomed mid to late May. The accession appears to be of little value at this location. From Australia; good seed producer.

Trifolium hybridum L.

BN-9567, from Turkey originally, was a solitary annual with abundant, coarse to medium stems. It was erect to sub-erect in habit with a medium amount of soft, cauline, well distributed leaves. Mature size was 12" x 16".

BN-10943 out of PI-120239, had a moderate amount of medium-sized stems and was sub-erect in habit. Leaves were abundant, soft and cauline, mature size was 12" x 20".

BN-10952, out of BN-9587, was a solitary annual with few, medium textured, sub-erect to prostrate stems with a moderate amount of soft, cauline leaves. Mature size was 14" x 36". Bloomed June and July, matured in July.

Trifolium incarnatum L.

PI-255393 originally from Yugoslavia, was solitary annual with an abundance of coarse erect stems. Leaves were few, soft, and cauline. Mature size was 11"-9"x16". Bloomed early June and was collected in July.

PI-284281 from Morocco was a solitary annual with moderately abundant erect to sub-erect stems and a moderate amount of soft cauline leaves. Mature size was 17"-12"x18".

PI-284283, from England, was a solitary annual with few, medium-sized erect and sub-erect stems. Leaves were abundant soft and cauline. Mature size was 12"-9"x10". Bloom and collection dates were June and July.

PI-290733 was a very weak accession and died early in the field prior to blooming. This accession was from England.

Trifolium pratense L.

BN-6988, 'Emerson' had coarse, sub-erect and erect stems present in medium to abundant quantities. Leaves were medium in abundance; soft and cauline. Size after one year was 12" x 22". It bloomed June and July, but set no seed. Plants were severely grazed by deer and winterkilled at Beltsville. The above description of the plants is for the first growing season.

## LEGUMES & OTHER

PI-310462, 'Renova', was solitary and erect to sub-erect in growth. Stems were abundant and medium to coarse in size. Leaves were also abundant and medium and well distributed the first year. Size after the first growing season was 18" x 22". This accession was subject to light to moderate mildew.

It suffered severe winter damage at this location and the second growing season had few, coarse, erect stems and few, harsh leaves. It also was severely susceptible to mildew the second year. A very poor accession at this location and not at all adapted to the climate.

PI-310463, 'Roggo', was solitary with a moderate amount of coarse, sub-erect stems. Leaves were abundant, soft, cauline, and well distributed. This accession was severely grazed by deer throughout its growing season.

PI-314937 from the USSR was an excellent accession. Stems were sub-erect, abundant, and coarse to medium in size. Leaves were large, abundant, soft, cauline and well distributed. Mature size was 8" x 20" and habit was solitary. The plants were not adapted to the heat of the summers at Beltsville and were mostly dead in October. The plants still alive in October winterkilled.

### Trifolium squarrosum L.

A solitary, cool season annual, erect in habit. Native to the Mediterranean Region.

PI-103517, originally from Algeria, was a solitary annual with a medium amount of coarse, erect stems and few, soft, cauline leaves. Mature size was 18" x 23". The accession bloomed in May in the greenhouse and matured and died in June. A poor accession with regard to conservation value.

### Trifolium vesiculosum Savi

An erect, drought resistant clover bearing white-purple flowers in large heads. Plants are glabrous and leaflets have serrate edges. A palatable species of grassy places in Southern Europe and the Caucasus. Some accessions appear more productive than other annual clovers now being grown for winter fodder in the Southern United States.

PI-316359 was a solitary annual with a medium amount of medium-sized sub-erect stems. Leaves were soft, cauline, and present in moderate quantities. Many plants died during the heat of the summer at Beltsville. Mature size was 6"-5"x16".

### Viburnum (hybrid)

'Alleghany'

A hybrid of Viburnum rhytidophyllum and Viburnum lantana. Similar to Viburnum rhytidophyllum but broader and less rugose. An evergreen shrub to 3 m. with leaves dark green, lustrous, and wrinkled above and reticulate beneath. Underside is gray or yellowish tomentose.

PI-316675 is a very attractive shrub three years old, received from Glenn Dale Plant Introduction Station. Leaves are very rugose and the wood is downy in appearance. Vigor is excellent and present size is 37" x 36".



## LEGUMES & OTHER

### Vicia amurensis Oett.

BN-18953, a perennial of Russian origin, had short rhizomes. Stems were medium in abundance, medium to coarse in size and sub-erect to prostrate in habit. Leaves were moderately abundant, soft to medium in texture and well distributed. This viney accession was vigorous in spite of summer heat and drought. Mature size was 16" x 30", and it bloomed in July and set seed in August.

### Vicia articulata Hornem.

A self-pollinated, sub-erect annual, used as forage and native to the Mediterranean Region and Canary Islands.

PI-338680 from Morocco was a sub-erect to prostrate solitary, annual with an abundance of medium-sized stems and a moderate amount of soft, well-distributed, cauline leaves. Mature size staked up was 35" x 25". It set seed from April to June under greenhouse conditions. Flowers were bluish-white and self-pollinating.

### Vicia benghalensis L.

Purple vetch

A climbing annual or biennial that survives on poor soil and is used as fodder in some agricultural areas. Grown as a pasture legume in western United States and Argentina. Deep red to dark purple flowers.

PI-308096 originally from Czechoslovakia was a solitary annual with a moderate amount of coarse viney stems and abundant, soft, cauline, and well distributed leaves. Stems radiated from the base of the plant giving a rosette type pattern. This accession had vigorous vines to 80 inches.

PI-338681 from Morocco was identical in appearance to PI-308096 with the exception that PI-338681 had an abundance of stems. Both accession bloomed in May and were collected in June. Length of vines was 80 inches also.

### Vicia cassubica L.

PI-325514 was a rhizomatous vetch extremely susceptible to overwatering. Stems reached only 7 inches in the greenhouse and the accession never performed well at Beltsville. It performed as an annual or biennial.

### Vicia dasycarpa Ten.

Climbing annual similar in appearance to V. villosa, but differing in its appressed-pubescent or glabrate stem and foliage. Naturalized from Europe and found along roadsides, in fields and waste places from Main to Montana - South to Georgia, Missouri, and California. Cross-pollinated.

BN-19253 from a commercial source was a solitary, sub-erect annual with vines to 66 inches. Stems originate in moderate quantities from a rosette-like base and were medium to fine in texture. Leaves were abundant, soft, cauline, and well distributed. This accession began blooming in February in the greenhouse and set seed in May and June. Flowers were light purple.

## LEGUMES & OTHER

BN-19254 from Texas was a vigorous solitary annual with abundant, medium-sized, sub-erect to prostrate stems. Leaves were abundant, soft, cauline and well distributed. Vines reached 33" in length. Stems originated in a basal rosette. Time of flowering and maturing were identical to BN-19253.

Roots of both accessions were coarse shallow tap roots and the plants were poorly self-pollinated.

### Vicia disperma DC.

A sparsely pubescent annual with climbing, angular weak, slender stems. A native to Southern Europe, it has been locally introduced at Berkley, California and on ballast at Mobile, Alabama.

PI-308115, originally from Czechoslovakia was a very dense solitary annual with very abundant, fine, sub-erect stems and an abundance of fine, soft, well distributed cauline leaves. It was self-pollinated and had vines to 50 inches. Bloomed in June in the greenhouse and matured in July and August.

### Vicia eriocarpa Halacsy

A solitary climbing annual with rose to purple flowers. Probably cross-pollinated.

BN-19190 was a solitary annual with very abundant, sub-erect, fine to medium-sized stems originating from a basal rosette. The abundant leaves were soft and cauline. Vines reached 43 inches and were slightly pubescent. Plants bloomed in March and April in the greenhouse and began setting seed in May. Very poorly self-pollinated.

### Vicia ervilia (L.) Willd.

A self-pollinated erect annual with small conical seeds sometimes used as a stock feed although it has been reported to be poisonous in large amounts. It is a hardy, early vetch cultivated in Southern Europe and the near East.

PI-340132 through PI-340137 and PI-340139 through PI-340145 were grown for comparison at Beltsville. Frequency of stems and leaves ranged from medium to few, with no plants showing much conservation value. Bloom dates ranged from March to May and maturity dated from May to June. A detailed comparison may be found on page 43. All plants were solitary annuals with stems originating in a basal rosette from a fine, shallow tap root.

### Vicia faba L.

Broad bean or horse bean  
An erect annual to 6 feet without tendrils. Leaflets are oval to oblong and flowers are white with purple blotches. Pods are up to 1 foot long. Native to North Africa and Southwestern Asia. Poisonous to some humans in the raw or partially cooked state. Seeds reportedly contain L-Dopa, a drug currently used to treat Parkinson's Disease.

## LEGUMES & OTHER

PI-268477 originally from Afghanistan was an erect solitary annual with few stems that were medium to fine in size for V. faba. Moderate amounts of soft cauline leaves were present on the accession. Mature size was 47" x 16". Bloomed March and April in the greenhouse and matured in May. This accession was fine and small for the species.

BN-19325 from Denmark was an erect solitary annual with few hollow stems. It had a medium amount of soft, broad, cauline leaves mostly in ranks of two. Bloomed in February in the greenhouse.

### Vicia filicaulis Webb & Berth.

PI-348918 from the Canary Islands was a solitary annual with fine, prostrate, vine-type stems. Although there were only a few stems at the base of the plants, there was abundant branching at about 2 feet from the base. The accession had few, soft, cauline leaves. Vines reached 55 inches. Bloomed in March in the greenhouse and matured in April. Perfectly self-pollinated.

### Vicia floridana S. Wats.

A delicate, reclining glabrous or glabrate perennial with weak, simple or sparingly branched stems. Has blue and white flowers and is found on sandy soils in Florida.

PI-316684 from Florida was a solitary perennial with abundant, fine, sub-erect stems. Leaves were medium to few in quantity, cauline and well distributed. Mature length of stems was 31 inches. White-purplish flowers are borne on spikes from the axils of the leaves.

This plant did not respond well to greenhouse culture. A large unconfined root structure and a well-drained soil to survive. It does poorly if kept too wet.

### Vicia graminea J.E. Smith

Small annual vetch to 2 feet with numerous violet flowers and pinnate leaves. Plants make most growth in the winter and mature rapidly in the spring. This is a palatable species used for pasture and hay and is native to Argentina. It is reported to produce a good hydrophilous forage of good palatability and low yield.

PI-197873 was a solitary annual with very abundant fine, sub-erect and prostrate stems with tendrils originating in a basal rosette. Leaves were moderately abundant, soft, grasslike (narrow), cauline and well distributed. Stems reached 16 inches in length. Some stems originate at the crown, but below the soil surface. The accession formed a very dense cover in the greenhouse. Bloomed in May and matured in June and July and was self-pollinated.

PI-308103 was a solitary perennial with abundant, fine, sub-erect to prostrate stems. Leaves were medium in abundance, soft, cauline and well distributed. Mature stems reached 48 inches. Bloomed February to April in the greenhouse and set seed March to May.



## LEGUMES & OTHER

Because this accession behaved like a perennial, the identity is questioned. Self-pollinated.

Both accessions had whitish-blue flowers and tendrils. Leaflets of PI-197873 were in groups of six to eight per leaf and leaflets of PI-308103 were in groups of two to four per leaf.

### Vicia grandiflora Scop.

Bigflower vetch

A prostrate annual with large, slightly yellow flowers. It provides good winter cover and reseeds freely with a high percentage of hard seeds. Seed shattering is more frequent as the pod matures. Native to Europe and the Orient.

BN-13535 was originally a volunteer at the NPMC with fine, abundant, sub-erect stems and abundant, soft, long narrow, cauline leaves. Mature size was 14" x 25". Bloomed in March to August in the greenhouse and seed was collected from May to August. Flowers were yellow with brown variations. Shattering was moderate and it was noted that the leaves were highly variable in shape and size. A very dense accession resembling V. pannonica.

### Vicia hajastana Grossh.

PI-347749 from the USSR was a solitary annual grown under greenhouse culture at Beltsville. Stems were sub-erect, medium in abundance and medium in texture. Leaves were moderate in abundance, soft and cauline. Mature size was 9" x 22". Flowers were yellow-brown and bloomed February to April. Plants matured April and May. Tendrils. Plant resembled V. pannonica.

### Vicia hircanica Fisch. & Mey.

An annual legume native to the trans-Caucasus Region of Russia near the Caspian and Black Seas, where it is cultivated to some extent.

PI-349413 was a sub-erect to prostrate annual with abundant coarse vine-like stems. Leaves were medium in abundance, soft, cauline and well distributed. Stems reached 46 inches in length. Flowers were yellow and white and bloomed during April in the greenhouse. Seed was collected May to June. Plants were glabrous with tendrils.

### Vicia incisaeformis

BN-19193 was a solitary annual resembling V. sativa, with the exception that the leaves are serrate with four to six lobes. It formed a solid mass 46" x 16" with abundant stems and leaves. Stems were fine, sub-erect to prostrate and leaves were soft cauline and well distributed. Leaflets were four to six per leaf, succulent, and the accession was very susceptible to spider mites in the greenhouse. Flowers were purple and white variegated and occurred in May and June. Set seed June and July. Very short tendrils.



LEGUMES & OTHER

Vicia japonica A. Gray

BN-18958, a perennial with short rhizomes, was received from Russia. Stems were of medium abundance and size and sub-erect in habit. Leaves were medium in abundance and texture and well distributed. This viney accession did well during the summer heat and showed no evidence of disease. Mature size was 18" x 30". Bloomed August, matured in September. This accession is hardy at Beltsville.

Vicia kingii Hooker f.

BN-19185 from Argentina was a solitary annual with few stems and leaves. This was a poor accession, subject to overwatering and spider mites.

Vicia lathyroides L.

Spring vetch

Annual to biennial legume with velvety hairs and ascending or prostrate stems. Leaflets are in pairs of two to four with the lower ones ovate-obovate and the upper ones linear and acute. Flowers are small, solitary nearly sessile and in the axils of the leaves. Occurs in dry hills, woods, grassy places and sandy country. Native to the Alps, Russia, the Caucasus, and North Africa.

PI-307469 from Sweden was a fairly dense, succulent, low growing accession measuring only 5" x 30" at maturity. This solitary annual had abundant, fine, prostrate stems and abundant, soft, well distributed cauline leaves. Tendrils were absent and leaflets were two to four per leaf. Bloomed April and May in the greenhouse and bore fruit during May to June. Moderate amount of shattering.

Vicia leavenworthii Torr. & Gray

A glabrescent to sparsely pilose or puberulent winter annual with quadrangular stems found on dry soil from southwestern Missouri and Arkansas to Texas. It is abundant on the Edwards Plateau of Texas where it is much sought after by livestock. A particularly valuable early spring forage plant, appearing even before needlegrass and when no other forage is available. It has been successfully cultivated for forage and also provides an excellent green manure.

PI-316686 from Texas performed poorly at Beltsville with only a moderate amount of fine, sub-erect to prostrate stems and few, soft, cauline leaves. Mature size was 13" x 34". Bloomed March to April in the greenhouse and bore fruit in May. A solitary annual, with self-pollinated, lavender flowers.

PI-349269 also from Texas was a much denser accession with abundant, fine, sub-erect and prostrate stems with tendrils and abundant, soft, well distributed cauline leaves. It was also lower growing than PI-316686 being only 9" x 25". Bloomed March and April and matured in May. This accession shatters excessively. Tendrils were present and flowers were small and purple.

PI-349270 from New Mexico was a solitary annual with a medium amount of fine, sub-erect and prostrate stems. Leaves were fine, few, soft, cauline and well distributed. Mature size was 8" x 30" and the accession is perfectly self-pollinated.

## LEGUMES & OTHER

### Vicia lutea L.

A glabrous to sparingly hirsute annual, native to Central and Southern Europe, Western Asia, and North Africa. Locally established as a roadside weed in Marin County, California.

PI-284352 was a solitary annual with abundant, fine, sub-erect stems and short tendrils. Leaves were few, soft, cauline, and well distributed. Bloomed April and matured in June.

### Vicia macrocarpa Bertol.

BN-19194 was a solitary annual vine to 85 inches. Stems originate from the crown in a rosette pattern. Stems were medium in texture and abundant. Leaves were few, soft, cauline and well distributed. Stems were reddish, branched and tendrils were present. The accession had quite large pods and somewhat resembled V. sativa (except for the pod size). Bloomed April and May and matured May and June. The accession was a good seed producer with little shattering.

### Vicia megalotropis Ledeb.

BN-18961, from Russia, was a rhizomatous, dense, leafy vetch grown under greenhouse culture at Beltsville. It was very poorly adapted to container growing and was quite susceptible to overwatering. Tendrils were present - twelve leaflets per leaf.

### Vicia melanops Sibth. & Smith

A native to Southern Europe.

PI-349271 was an excellent accession at Beltsville. It was a solitary annual with very abundant, fine, sub-erect and prostrate stems and very abundant, soft, well distributed, cauline leaves. Mature size was 13" x 34". It bloomed with yellow flowers during March and April in the greenhouse and matured in June. It provided very dense, low cover. Short tendrils were present and plants self-pollinated very poorly.

### Vicia meyeri Boiss.

A climbing annual vetch with leaves ending in tendrils. Flowers are bright blue, small and in florescences of two to four. Pods are glabrous and flattened laterally. Occurs among shrubs on roadsides in Crimea, the Caucasus, and Arabia.

BN-19196 was an erect to sub-erect, solitary annual with an abundance of very fine stems and a moderate amount of very small, soft, cauline leaves. Light lavender flowers occurred in April and matured in May and June when the plant was 8" x 19". Leaflets ranged from ten to fourteen per leaf and tendrils were present.

## LEGUMES & OTHER

### Vicia monantha Retz.

A semi-erect, self-pollinated, red flowered annual that grows well in arid regions and under irrigation.

PI-324170 was a solitary annual with a medium amount of very fine sub-erect and prostrate vine-like stems. Leaves were soft, cauline, well distributed and medium in abundance. Vines reached 22 inches wide and a height varied from 5 to 9 inches. Flowers were light red, perfectly self-pollinated and occurred during March in the greenhouse. Plants matured in April. Pods were short and broad, tendrils were present, and leaflets were usually twelve per leaf. Plants varied from slightly pubescent to glabrous and were easily overwatered.

### Vicia narbonensis L.

Narbonne vetch

A twining annual vetch with purple flowers that are tolerant of acid soils. Many accessions have good foliage production. Grown for fodder and green manure in Southern Europe and cultivated in the southwestern United States. Occurs as a weed in Maryland and Delaware.

PI-340146 through PI-340156 and PI-349272, all from Turkey, were solitary annuals varying in habit from erect to prostrate. Sizes were also highly variable. For ease of comparison, these twelve accessions are compared on page 44.

### Vicia ocalensis Godfrey & Kral

Reported to be a climbing perennial with blue flowers, native to the southeastern United States.

PI-316685 from Florida was a solitary climbing perennial with stems to 45 inches. Stems were medium in abundance and sub-erect to prostrate in habit. Leaves were medium to few in abundance, soft, and cauline. Bloomed April to June and matured in June and July in the greenhouse. The accession had tendrils, light blue and white flowers, and four to six leaflets per leaf. Subject to overwatering.

### Vicia onobrychoides L.

A perennial vetch native to mountain fields at an elevation of approximately 5,000 feet in Spain and Portugal. Flowers in April and June in its native habitat.

BN-19198 was a perennial with very short rhizomes originating below the soil level giving a rosette pattern. It died during June in the greenhouse as the result of high temperature. The accession was slow growing with four to six leaflets per leaf. Leaves were very fine.

### Vicia orobus DC.

BN-18964 was a slowly rhizomatous perennial vetch with very short rhizomes. Very susceptible to spider mites and ant damage at this location. Plants reached 6" x 13" three months after being transplanted to the field in May. No tendrils. Eventually killed by ants.



## LEGUMES & OTHER

### Vicia pannonica Crantz

A pilose to villous annual with white flowers and reclining to erect and climbing stems. Self-pollinated. Used as hay, green manure, pasture and seed crop.

PI-317906 from Czechoslovakia via Australia was a solitary annual with very abundant, fine, sub-erect stems with an abundance of soft, fine well distributed cauline leaves. Stems reached 26 inches at maturity. The accession was poorly self-pollinated and bloomed with flowers in two and threes in March through May. Matured during May and June. Plants were covered with short pubescence and the leaves had tendrils.

### Vicia pilosa Bieb.

BN-19199 was a small solitary annual with abundant, fine prostrate stems and moderately abundant, soft, well distributed cauline leaves. It was a dense, low accession that provided good cover. Mature size was 6" x 20". Bloomed April in the greenhouse and matured in May. Tendrils are wanting. Identity is being checked.

### Vicia pyrenaica Pourret

BN-19230 from France was grown under greenhouse culture at Beltsville. Plants grew very slowly and were subject to overwatering. Plants were solitary and had two to four leaflets per leaf. Tendrils were absent. Plants reached only 1½ to 6 inches in size before dying from root rot.

### Vicia sativa L.

PI-340131 and PI-340157 through PI-340169 were all solitary annuals received from Turkey. All were grown under greenhouse culture at Beltsville. A comparison of these accessions can be found on page 45.

The best accessions at this location were PI-340160, PI-340163, PI-340165, PI-340166, PI-340168, and PI-340169.

### Vicia unijuga A.Br.

PI-344758 from Belgium was a solitary perennial with abundant, fine erect stems and a medium amount of soft, well distributed cauline leaves. Mature size was 17" x 36" and it remained vigorous throughout the summer. Bloomed May through August, matured August through September. Spring recovery was moderately early and abundant.

### Vicia variegata Willd.

BN-18966 was a very rhizomatous perennial from the USSR with a medium amount of medium textured erect to prostrate stems. Leaves were moderately abundant, soft, cauline and well distributed. Sizes were 16" x 30"; restricted. Bloomed May and matured in July. Leaflets are very fine and the accession is very open thus providing poor cover.

### Vicia villosa Roth

PI-338682 from Morocco and PI-340170 through PI-340176 from Turkey were grown under greenhouse culture at Beltsville. All were solitary annual with tendrils. A comparison of these accessions can be found on page 46.



Vicia ervilia

| <u>PI</u> | <u>Stems</u> | <u>Leaves</u> | <u>Mature<br/>Size</u> | <u>Bloom</u> | <u>Maturity</u> |
|-----------|--------------|---------------|------------------------|--------------|-----------------|
| 340132    | M,M,E        | M,S,C,WD      | 16" x 20"              | 3,4          | 5               |
| 340133    | F,M,E-SE     | M,S,C,WD      | 8" x 17"               | 3,4          | 5,6             |
| 340134    | M,C-M,E-SE   | M,S,C,WD      | 13" x 19"              | 3,4          | 6               |
| 340135    | F,M,E        | F,S,C,WD      | 15" x 22"              | 3,4          | 5               |
| 340136    | M,F,E-SE     | M,S,C,WD      | 9" x 14"               | 4            | 5               |
| 340137    | M,M,E-SE     | M,S,C,WD      | 8" x 18"               | 4            | 6               |
| 340139    | F,M-C,E      | F,S,C,WD      | 10" x 13"              | 3,4          | 5               |
| 340140    | F,M,E        | F,S,C         | 11" x 10"              | 3,4          | 5               |
| 340141    | M,M,E-SE     | M,S,C,WD      | 12" x 15"              | 4            | 5               |
| 340142    | F,M,E-SE     | F,S,C         | 9" x 18"               | 3,4          | 5,6             |
| 340143    | M,M,E-SE     | M,S,C,WD      | 13" x 10"              | 3,4          | 5               |
| 340144    | F,M,E-SE     | M,S,C,WD      | 9" x 12"               | 4,5          | 5               |
| 340145    | F,F,E-SE     | M,S,C         | 12" x 14"              | 3,4          | 5               |

Vicia narbonensis

| <u>PI</u> | <u>Stems</u>       | <u>Leaves</u> | <u>Mature<br/>Size</u> | <u>Bloom</u> | <u>Maturity</u> | <u>Notes</u>  |
|-----------|--------------------|---------------|------------------------|--------------|-----------------|---|
| 340146    | F, C, E, Vine      | M, S, C, WD   | 60" x 26"              | 2, 3, 4      | 4, 5, 6         | Poor cover  |
| 340147    | F, C, E, Vine      | M, S, C, WD   | 52" x 18"              | 3, 4         | 5               | Tall upright form   |
| 340148    | A, M, SE, Vine     | A, S, C, WD   | 8" x 20"               | 4            | 6               | Virused?  |
| 340149    | A, C, SE, Vine     | A, S, C, WD   | 12" x 23"              | 4, 5         | 5, 6            | Virused?  |
| 340150    | A, F, SE, Vine     | A, S, C, WD   | 8" x 19"               | 4, 5         | 6               | Small dense mass, good cover                              |
| 340151    | F, C, E, Vine      | M, S, C, WD   | 46" x 16"<br>(Staked)  | 3, 4         | 5, 6            | Resembles <u>Vicia faba</u>                               |
| 340152    | F, C, SE, Vine     | M, S, C, WD   | 10" x 26"              | 4, 5         | 5, 6            | Poor accession - too open                                 |
| 340153    | M, M, SE, Vine     | M, S, C, WD   | 14" x 25"              | 3, 4         | 5, 6            | Poor accession - too open                                 |
| 340154    | A, C, SE, Vine     | A, S, C, WD   | 11" x 24"              | 3, 4         | 5, 6            | Very vigorous, dense                                      |
| 340155    | A, M, SE, Vine     | A, S, C, WD   | 8" x 17"               | 3, 4, 5      | 6, 7            | Late accession - susceptible to<br>mildew and damping off |
| 340156    | A, M, SE, Vine     | A, S, C, WD   | 7" x 18"               | 4, 5         | 6               | Good, soil cover, dense                                   |
| 349272    | M, M, SE-P<br>Vine | M, S, C, WD   | 12" x 38"              |              |                 |   |

Vicia sativa

| PI     | Stems             | Leaves     | Mature<br>Size | Bloom | Maturity | Notes                              |
|--------|-------------------|------------|----------------|-------|----------|------------------------------------|
| 340131 | M,F,P,Vine        | M,S,C      | Vines to 72"   | 5,6   | 6        |                                    |
| 340157 | A,C,P,Vine        | M,S,C,WD   | Vines to 75"   | 4     | 5,6      | Worthless accession                |
| 340158 | A,C,P,Vine        | A,S,C,WD   | Vines to 96"   | 3,4   | 5,6      |                                    |
| 340159 | M,M,P,Vine        | M,S,C,WD   | Vines to 104"  | 3,4   | 5,6      |                                    |
| 340160 | A,C,P,Vine        | VA,S,C,WD  | Vines to 80"   | 3,4,5 | 5,6      | Perfectly selfed - Good green manu |
| 340161 | F,M,P,Vine        | M,S,C,WD   | Vines to 76"   | 4,5   | 5,6      | Not much vegetative material       |
| 340162 | A,M,P,Vine        | A,S,C,WD   | Vines to 80"   | 3,4   | 5,6      |                                    |
| 340163 | A,M,P,Vine        | A,S,C,WD   | Vines to 86"   | 4     | 5,6      | Good accession                     |
| 340164 | M,F,E-SE,<br>Vine | M-F,S,C    | Vines to 88"   | 3,4   | 5,6      | Poor accession                     |
| 340165 | A,F,P,Vine        | A,S,C,WD   | Vines to 52"   | 5     | 6        | Very dense but dwarfed             |
| 340166 | A,F,SE-P,<br>Vine | A,S,C,WD   | Vines to 80"   | 5     | 6,7      | Late maturing accession            |
| 340167 | M,C,P,Vine        | M,S,C,WD   | Vines to 76"   | 3,4,5 | 5,6      | Perfectly selfed                   |
| 340168 | A,C,SE,Vine       | A,S,C,WD   | Vines to 80"   | 4,5   | 5,6      | Very leafy accession               |
| 340169 | A,M,P,Vine        | A-M,S,C,WD | Vines to 105"  | 3,4   | 5,6      | Largest accession of group         |

Vicia villosa

| <u>PI</u> | <u>Stems</u>   | <u>Leaves</u> | <u>Mature<br/>Size</u> | <u>Bloom</u> | <u>Maturity</u> | <u>Notes</u>  |
|-----------|----------------|---------------|------------------------|--------------|-----------------|---|
| 338682    | A, C, P, Vine  | A, S, C, WD   | Vines to 100"          | 4, 5         | 6               | Big for <u>Villosa</u> , good accession                       |
| 340170    | F, M, P, Vine  | A, S, C, WD   | Vines to 54"           | 4, 5, 6      | 6, 7            | Worthless accession   |
| 340171    | A, M, P, Vine  | A, S, C, WD   | Vines to 83"           | 4, 5, 6, 7   | 6, 7            | Fair accession  |
| 340172    | A, C, P, Vine  | A, S, C, WD   | Vines to 72"           | 4, 5         | 6, 7            | One of the best accessions                                    |
| 340173    | A, C, SE, Vine | A, S, C, WD   | Vines to 84"           | 4, 5, 6      | 6               | One of the best accessions                                    |
| 340174    | F, M, P, Vine  | A, S, C, WD   | Vines to 80"           | 4, 5, 6, 7   | 6, 7, 8         | Worthless accession - also late maturing                      |
| 340175    | A, C, P, Vine  | A, S, C, WD   | Vines to 88"           | 4, 5, 6      | 6               | Good dense accession  |
| 340176    | A, F, P, Vine  | A, S, C, WD   | Vines to 64"           | 5, 6         | 7, 8            | Good accession for green manure, very dense and late maturing |



# SUMMARY OF REIDENTIFICATIONS - 1970

| PI No. | BN No.  | Original Identification                        | Reidentified as:                         |
|--------|---------|--|--|
| 121096 | 2591    | Astragalus sp.                                 | Astragalus glycyphyllos L.               |
| 150564 | 3640    | Medicago ruthenica                             | Trigonella popovii E. Kor. ex char.      |
| 150577 | 3648    | Astragalus sp.                                 | Astragalus sinicus L.                    |
| 172389 | 15284   | Bromus sp.                                     | Bromus biebersteinii Roem. & Schult.     |
| 172392 | 15286   | Bromus sp.                                     | Bromus biebersteinii Roem. & Schult.     |
| 196479 | 10093   | Eleusine sp.                                   | Digitaria fuscens (Presl.) Henr.         |
| 199091 | 7622    | Briza minor                                    | Eragrostis obtusa Munro                  |
| 199331 | 7732    | Eragrostis sp.                                 | Eragrostis humicola Napper               |
| 202696 | 8197    | Bromus haenkeanus (unioloides) Presl.          | Bromus coloratus Steud.                  |
| 206883 | 19705   | Calamagrostis pseudophragmites                 | Calamagrostis epigejos (L.) Roth         |
| 221431 | 19694   | Astragalus sp.                                 | Astragalus tephrosioides Boiss.          |
| 246728 | 7886    | Astragalus sp.                                 | Astragalus glycyphyllos L.               |
| 246730 | 7905    | Lotus corniculatus subsp. ciliatus             | Lotus corniculatus L.                    |
| 246738 | 7915    | Lotus tenuis Waldst. & Kit.                    | Lotus corniculatus L.                    |
| 251391 | 15295   | Phleum sp.                                     | Phleum phleoides (L.) Karst.             |
| 269866 | 11513   | Alopecurus pratensis                           | Pennisetum lanatum Klotzsch              |
| 271146 | 11581   | Cenchrus ciliaris L.                           | Pennisetum pedicellatum Trin.            |
| 271610 | 11668   | Setaria sphacelata                             | Setaria glauca (L.) Beauv.               |
| 285390 | 14641   | Photinia sp.                                   | Cotoneaster frigida Lindl.               |
| 286481 | 13630   | Lespedeza penduliflora (Oudemans) Nakai        | Lespedeza thunbergii (DC.) Nakai         |
| 287906 | 13728   | Oryzopsis miliacea (L.) Benth. & Hook.         | Oryzopsis paradoxa (L.) Nutt.            |
| 289651 | 13889   | Festuca sp.                                    | Festuca fenas Lag.                       |
| 289654 | 13892   | Festuca sp.                                    | Festuca fenas Lag.                       |
| 295324 | 14786   | Lespedeza macrocarpa                           | Lespedeza thunbergii (DC.) Nakai         |
| 295325 | 14787   | Lespedeza nikkoensis Nakai                     | Lespedeza homoloba Nakai                 |
| 295327 | 14789   | Lespedeza penduliflora (Oudemans) Nakai        | Lespedeza thunbergii (DC.) Nakai         |
| 295328 | 14790   | Lespedeza penduliflora (Oudemans) Nakai        | Lespedeza thunbergii (DC.) Nakai         |
| 295698 | 14830   | Eragrostis lehmanniana Nees                    | Eragrostis curvula (Schrad.) Nees        |
| 299499 | F -4167 | Brachiaria sp.                                 | Brachiaria cf. mutica (Forsk.) Stapf     |
| 300015 | 15505   | Lotus strictus Fisch. & Mey.                   | Lotus corniculatus L.                    |
| 302993 | 15542   | Agropyron sibericum                            | Agropyron pectiniforme Roem. & Schult.   |
| 306679 | -       | Thrixanthocereus blossfeldiora (Werd.) Backeb. | Facheiroa blossfeldiora (Werd.) Marshall |
| 312453 | 17119   | Festuca varia Haenke                           | Festuca ovina L. sens. lat.              |
| 314099 | 17365   | Onobrychis sp.                                 | Onobrychis viciifolia Scop.              |

# SUMMARY OF REIDENTIFICATIONS - 1970

| PI No. | BN No. | Original Identification                | Reidentified as:                                    |
|--------|--------|--|---|
| 314413 | -      | Astragalus brachycarpus                | Astragalus bungeanus Boiss.                         |
| 314523 | 17504  | Festuca ovina L.                       | Festuca ovina L. (sens. lat.)                       |
| 314630 | 17540  | Agropyron sp.                          | Brachypodium pinnatum (L.) Beauv.                   |
| 314667 | 17550  | Elymus junceus                         | Elymus karataviensis Roshev.                        |
| 314677 | 17558  | Elymus sp.                             | Elymus karataviensis Roshev.                        |
| 315448 | 17663  | Festuca rubra L.                       | Festuca ovina L.                                    |
| 316287 | 17823  | Lupinus luteus L.                      | Lupinus albus L.                                    |
| 316469 | 17932  | Setaria sp.                            | Setaria splendida Stapf                             |
| 318638 | 18012  | Lespedeza cuneata (Dum. Cours.) G. Don | Lespedeza juncea (L.f.) Pens.                       |
| 325181 | 18612  | Agropyron gracillimum                  | Agropyron stipifolium Czern.                        |
| 330679 | 18812  | Pennisetum asperifolium                | Pennisetum setaceum (Forsk.) Chiov.                 |
| 330718 | 18845  | Poa sp.                                | Poa sterilis Bieb.                                  |
| 331180 | 18863  | Panicum virgatum L.                    | Panicum antidotale Retz.                            |
| 331347 | 18866  | Panicum sp.                            | Panicum maximum Jacq.                               |
| 331391 | 18870  | Eragrostis sp.                         | Sporobolus marginatus Hochst. ex. A. Rich.          |
| 340131 | 19105  | Vicia angustifolia L.                  | Vicia sativa L.                                     |
| 344569 | 19271  | Brachypodium silvaticum (Huds.) Beauv. | Brachypodium sylvaticum (Huds.) Beauv.              |
| 344581 | 19283  | Festuca duriuscula Martl. et Koch.     | Festuca longifolia Thuill.                          |
| 353399 | 19526  | Digitaria argyrograpta (Nees) Stapf    | Paspalum plicatum Michx.                            |
| -      | 7129   | Lotus corniculatus v. tenuifolius      | Lotus corniculatus L.                               |
| -      | 7989   | Bromus sp.                             | Bromus erectus Huds.                                |
| -      | 9494   | Trifolium sp.                          | Trifolium nigrescens ssp. petrisavii (Clem.) Holmbo |
| -      | 9499   | Trifolium sp.                          | Trifolium nigrescens Viv.                           |
| -      | 9519   | Trifolium sp.                          | Trifolium nigrescens Viv.                           |
| -      | 9528   | Trifolium sp.                          | Trifolium nigrescens Viv.                           |
| -      | 10938  | Trifolium sp.                          | Trifolium nigrescens Viv.                           |
| -      | 10942  | Trifolium hybridum                     | Trifolium nigrescens ssp. petrisavii (Clem.) Holmbo |
| -      | 10945  | Trifolium sp.                          | Trifolium cf. balansae Boiss.                       |
| -      | 10947  | Trifolium sp.                          | Trifolium nigrescens Viv.                           |
| -      | 11569  | Trifolium sp.                          | Trifolium nigrescens Viv.                           |
| -      | 12891  | Achillea sp.                           | Trifolium smyrneum Boiss.                           |
| -      | 18263  | Festuca sp.                            | Achillea filipendulina Lam.                         |
| -      | 19185  | Vicia sp.                              | Eragrostis ferruginea (Thunb.) Beauv.               |
| -      | 19328  | Vicia angustifolia                     | Vicia kingii Hooker f.                              |
| -      | 19202  | Vicia tenuissima                       | Lotus purshianus (Benth.) Clements & Clements       |
| -      |        |  | Vicia tetrasperma (L.) Moench.                      |

# CHANGES IN NOMENCLATURE

| Original Name               | New Name                   |
|-----------------------------|----------------------------|
| Brachypodium ramosus Huds.  | Brachypodium sp.           |
| Festuca elatior L.          | Festuca pratensis Huds.    |
| Ononis hircina Jacq.        | Ononis arvensis L.         |
| Sanguisorba polygama Nyland | Sanguisorba officinalis L. |

Information compiled from Summaries No. 38, 39, 40, and 41, January through December 1970, from Plant Introduction Investigations, New Crops Research Branch, ARS.

National Plant Materials Center  
Domestic Distribution of Seed in 1970

| Genera              | Number of Packets Distributed to: |              |                |      |
|---------------------|-----------------------------------|--------------|----------------|------|
|                     | North-<br>east                    | Mid-<br>west | South-<br>east | West |
| Actinidia.....      |                                   |              | 1              |      |
| Agropyron.....      |                                   |              | 29             | 66   |
| Alyssum.....        |                                   |              |                | 2    |
| Amorpha.....        |                                   |              |                | 3    |
| Ampelopsis.....     |                                   |              |                | 1    |
| Andropogon.....     | 7                                 | 1            |                | 4    |
| Anthephora.....     |                                   |              |                | 1    |
| Arenaria.....       |                                   |              |                | 3    |
| Aristida.....       |                                   |              |                | 1    |
| Artemisia.....      |                                   |              |                | 1    |
| Asparagus.....      |                                   |              |                | 2    |
| Astragalus.....     |                                   |              |                | 5    |
| Bauhinia.....       |                                   |              |                | 1    |
| Biserrula.....      |                                   |              |                | 48   |
| Bothriochloa.....   | 9                                 |              |                | 9    |
| Brachyachne.....    |                                   |              |                | 1    |
| Brachypodium.....   |                                   |              | 38             | 1    |
| Briza.....          |                                   |              |                | 1    |
| Bromus.....         |                                   |              |                | 3    |
| Calamagrostis.....  |                                   |              | 9              |      |
| Casuarina.....      |                                   |              |                | 2    |
| Cenchrus.....       |                                   |              |                | 58   |
| Cerastium.....      |                                   |              |                | 3    |
| Chrysopogon.....    |                                   |              | 1              |      |
| Clitoria.....       |                                   |              |                | 11   |
| Cotoneaster.....    |                                   |              |                | 1    |
| Cupressus.....      |                                   |              |                | 3    |
| Dactylis.....       |                                   |              |                | 30   |
| Dactyloctenium..... |                                   |              | 1              | 2    |
| Desmanthus.....     |                                   |              |                | 2    |
| Desmodium.....      |                                   |              | 2              | 1    |
| Dianthus.....       |                                   |              |                | 2    |
| Digitaria.....      |                                   |              |                | 2    |
| Diospyros.....      | 1                                 |              |                |      |
| Dorycnium.....      |                                   |              |                | 4    |
| Echinochloa.....    |                                   |              | 4              |      |
| Elaeagnus.....      | 3                                 |              |                | 24   |
| Eleusine.....       |                                   |              | 17             |      |
| Elymus.....         |                                   |              |                | 4    |
| Enchylaena.....     |                                   |              |                | 2    |
| Eragrostis.....     | 1                                 |              | 10             | 4    |
| Eremopoa.....       |                                   |              | 2              |      |



National Plant Materials Center  
Domestic Distribution of Seed in 1970

| Genera            | Number of Packets Distributed to: |              |                |      |
|-------------------|-----------------------------------|--------------|----------------|------|
|                   | North-<br>east                    | Mid-<br>west | South-<br>east | West |
| Festuca.....      |                                   |              | 7              | 4    |
| Fingerhuthia..... |                                   |              | 6              |      |
| Galenia.....      |                                   |              |                | 2    |
| Grewia.....       |                                   |              |                | 1    |
| Helianthemum..... |                                   |              |                | 2    |
| Heylandia.....    |                                   |              |                | 1    |
| Hippocrepis.....  |                                   |              |                | 4    |
| Hippophae.....    | 2                                 |              |                |      |
| Hordeum.....      |                                   |              |                | 4    |
| Indigofera.....   |                                   |              |                | 6    |
| Juncus.....       |                                   |              | 2              | 1    |
| Kochia.....       |                                   |              |                | 4    |
| Lasiurus.....     |                                   |              | 3              |      |
| Lathyrus.....     | 10                                |              |                | 15   |
| Leptochloa.....   | 4                                 |              |                |      |
| Lespedeza.....    | 4                                 |              |                | 7    |
| Lonicera.....     | 1                                 |              |                |      |
| Lotus.....        | 2                                 |              |                | 49   |
| Lupinus.....      |                                   |              | 3              |      |
| Malus.....        |                                   |              | 1              |      |
| Melilotus.....    | 1                                 |              |                | 3    |
| Minuartia.....    |                                   |              |                | 1    |
| Miscanthus.....   |                                   |              |                | 1    |
| Neurachne.....    |                                   |              |                | 1    |
| Oryzopsis.....    |                                   |              |                | 34   |
| Osteospermum..... |                                   |              |                | 1    |
| Panicum.....      | 29                                |              | 34             | 2    |
| Parochetus.....   | 1                                 |              |                |      |
| Paspalum.....     |                                   |              |                | 9    |
| Phalaris.....     |                                   |              |                | 139  |
| Poa.....          |                                   |              |                | 2    |
| Polypogon.....    |                                   |              | 11             |      |
| Potentilla.....   |                                   |              |                | 10   |
| Prunus.....       | 1                                 |              |                |      |
| Psoralea.....     |                                   |              |                | 3    |
| Rhamnus.....      | 1                                 |              |                | 1    |
| Rhynchosia.....   |                                   |              |                | 2    |
| Rosa.....         |                                   |              |                | 7    |
| Salsola.....      |                                   |              |                | 1    |
| Sanguisorba.....  |                                   |              |                | 1    |
| Sedum.....        | 1                                 |              |                | 4    |
| Sorbus.....       | 1                                 |              |                |      |
| Sorghum.....      |                                   |              |                | 9    |
| Sporobolus.....   |                                   |              |                | 9    |

National Plant Materials Center  
Domestic Distribution of Seed in 1970

| Genera             | Number of Packets Distributed to: |              |                |      |
|--------------------|-----------------------------------|--------------|----------------|------|
|                    | North-<br>east                    | Mid-<br>west | South-<br>east | West |
| Stipa.....:        |                                   |              | 3              | 10   |
| Stylosanthes.....: |                                   |              | 1              | 19   |
| Sutherlandia.....: |                                   |              |                | 2    |
| Tricholaena.....:  |                                   |              |                | 2    |
| Trifolium.....:    | 81                                |              | 1              | 36   |
| Urochloa.....:     |                                   |              |                | 1    |
| Veronica.....:     |                                   |              |                | 5    |
| Vicia.....:        | 1                                 |              |                | 32   |
| TOTALS:            | 161                               | 1            | 186            | 754  |

National Plant Materials Center  
Domestic Distribution of Vegetative Material in 1970

| BN No. | Species   | Type and Amount of Material |
|--------|---|-----------------------------|
| 12890  | <i>Achillea filipendula</i> 'Parker's Variety'        | 10 plants                   |
| 12891  | <i>Achillea filipendula</i>                           | 15 plants                   |
| 11052  | <i>Achillea millefolium</i>                           | 10 plants                   |
| 11046  | <i>Ajuga reptans</i>                                  | 20 divisions                |
| 19300  | <i>Brachiaria decumbens</i> PI-344767                 | stolons                     |
| 19297  | <i>Brachiaria ruziziensis</i> PI-344764               | stolons                     |
| 19298  | <i>Brachiaria ruziziensis</i> PI-344765               | stolons                     |
| 19529  | <i>Brachiaria ruziziensis</i>                         | stolons                     |
| 19011  | <i>Carex</i> sp. PI-338634                            | plants                      |
| 19308  | <i>Cotoneaster salicifolia</i>                        | 6 plants                    |
| 19309  | <i>Cotoneaster wateri</i>                             | 6 plants                    |
| 19575  | <i>Cupressocyparis leylandi</i> 'Leighton Green'      | 6 plants                    |
| 19527  | <i>Digitaria smutsii</i>                              | culms                       |
| 19528  | <i>Digitaria umfolozi</i>                             | culms                       |
| 19304  | <i>Echinochloa polystachya</i> PI-344771              | stolons                     |
| 17493  | <i>Euonymus fortunei</i> 'Longwood' PI-275075         | 13 plants                   |
| 19632  | <i>Hemarthria altissima</i> PI-349798                 | stolons                     |
| 19633  | <i>Hemarthria altissima</i> PI-349797                 | stolons                     |
| 19634  | <i>Hemarthria altissima</i> PI-349796                 | stolons                     |
| 19302  | <i>Hyparrhenia</i> sp. PI-344769                      | stolons                     |
| 18027  | <i>Ilex crenata</i> 'Highlight' PI-316588             | 1 plant                     |
| 19303  | <i>Ischaemum indicum</i> PI-344770                    | stolons                     |
| 18528  | <i>Juniperus conferta</i> PI-323932                   | 3 plants                    |
| 19310  | <i>Juniperus horizontalis</i> 'Blue Rug' = 'Wiltonii' | 6 plants                    |
| 10762  | <i>Liriope graminifolia</i> PI-82105                  | 15 plants                   |
| 10763  | <i>Liriope graminifolia</i> PI-131901                 | 15 plants                   |
| 10764  | <i>Liriope graminifolia</i> PI-254924                 | 15 plants                   |
| 11065  | <i>Liriope muscari</i> 'Munroi #1'                    | 15 plants                   |
| 11064  | <i>Liriope muscari</i> exiflora                       | 15 plants                   |
| 11062  | <i>Liriope</i> sp. 'Majestic'                         | 15 plants                   |
| 11063  | <i>Liriope</i> sp. 'Big Blue'                         | 15 plants                   |
| 11067  | <i>Liriope</i> sp. 'Curly Twist'                      | 15 plants                   |
| 11069  | <i>Liriope</i> sp. 'Wonder Evergreen'                 | 15 plants                   |
| 19312  | <i>Lonicera japonica</i> aurea-reticulata             | 6 plants                    |
| 12904  | <i>Lonicera nitida</i>                                | 2 plants                    |
| 10792  | <i>Ophiopogon</i> sp.                                 | 15 plants                   |
| 16626  | <i>Paspalum cromyorrhizon</i> PI-310059               | 4 plants                    |
| 16628  | <i>Paspalum cromyorrhizon</i> PI-310061               | 50 plants                   |
| 16632  | <i>Paspalum cromyorrhizon</i> PI-310065               | 20 plants                   |
| 16638  | <i>Paspalum cromyorrhizon</i> PI-310071               | 20 plants                   |
| 19526  | <i>Paspalum plicatulum</i> * PI-353399                | culms                       |
| 19301  | <i>Pennisetum clandestinum</i> PI-344768              | stolons                     |
| 8609   | <i>Polygonum cuspidatum</i> compactum                 | 20 plants                   |
| 11030  | <i>Potentilla tridentata</i>                          | 12 plants                   |
| 19173  | <i>Pyrus calleryana</i> 'Bradford' pear               | 6 plants                    |

\*Received as *Digitaria argyrograpta*; Later reidentified

National Plant Materials Center  
Domestic Distribution of Vegetative Material in 1970

| BN No. | Species                       | Type and Amount of Material |
|--------|-------------------------------|-----------------------------|
| 18764  | Rhododendron molle PI-159034  | 5 plants                    |
| 10784  | Rosa virginiana               | 12 plants                   |
| 12057  | Rosa sp.                      | 111 rooted cuttings         |
| 1478   | Sasa pygmea                   | 15 suckers                  |
| 14570  | Sedum hispanicum              | 12 plants                   |
| 15081  | Sedum hybridum                | 6 plants                    |
| 12914  | Sedum sexangulare             | 6 plants                    |
| 10885  | Sedum spurium coccineum       | 6 plants                    |
| 11048  | Thymus lanicaulis             | 6 plants                    |
| 10886  | Thymus serpyllum              | 5 plants                    |
| 16142  | Trifolium africanum PI-300146 | 6 plants                    |
| 8610   | Xanthoriza simplicissima      | 27 plants                   |

Bulk Seed Shipments - 1970

| BN No. | Species                             | Amount        |
|--------|-------------------------------------|---------------|
| 3654   | Agropyron elongatum 'Jose'          | 1 lb., 10 oz. |
| 9026   | Ammophila breviligulata             | 5 lbs.        |
| 400    | Bothriochloa ischaemum 'King Ranch' | 1/2 lb.       |
| 9344   | Bromus arvensis 'Svalof's Sleipner' | 9 lbs.        |
| 13066  | Bromus wildenowii                   | 1 lb., 10 oz. |
| 18596  | Dactylis glomerata                  | 1 lb., 10 oz. |
| 2279   | Lespedeza bicolor 'Natob'           | 30 lbs.       |
| 8624   | Panicum virgatum 'Carthage'         | 9 lbs.        |
| --     | Poa compressa                       | 1/2 lb.       |



## NATIONAL PLANT MATERIALS CENTER

## 1970 Seed Production

| <u>Grasses</u> |        |        |                    | Amount of<br>Seed |
|----------------|--------|--------|--------------------|-------------------|
| GENUS          |        |        |                    |                   |
| - Species      | BN No. | PI No. | Original Source    |                   |
| AGROPYRON      |        |        |                    |                   |
| cristatum      | 18819  | 330686 | Iran               | 40.8 gr.          |
| fibrosum       | 19316  | 345585 | U.S.S.R.           | 0.7 gr.           |
| imbricatum     | 18613  | 325182 | U.S.S.R.           | 36.9 gr.          |
| lavrenikoanum  | 18614  | 325184 | U.S.S.R.           | 1.1 gr.           |
| pectiniforme   | 15542  | 302993 | Turkey             | 5.8 gr.           |
| pectiniforme   | 17594  | 315359 | U.S.S.R.           | 0.4 gr.           |
| pectiniforme   | 17952  | 316954 | U.S.S.R.           | 0.5 gr.           |
| sibiricum      | 17335  | 313961 | U.S.S.R.           | 87.4 gr.          |
| sibiricum.     | 17599  | 315365 | U.S.S.R.           | 8.7 gr.           |
| trachycaulum   | 19319  | 345588 | U.S.S.R.           | 23.2 gr.          |
| AGROSTIS       |        |        |                    |                   |
| tenuis         | 19259  | 344556 | Czechoslovakia     | trace             |
| ALOPECURUS     |        |        |                    |                   |
| arundinaceus   | 17452  | 314355 | U.S.S.R.           | 4.2 gr.           |
| pratensis      | 11050  | 265564 | Netherlands        | 9.9 gr.           |
| pratensis      | 18730  | 326210 | U.S.S.R.           | 20.5 gr.          |
| pratensis      | 18732  | 326212 | U.S.S.R.           | 24.5 gr.          |
| pratensis      | 18782  | 341785 | Maryland           | 0.3 gr.           |
| ARRHENATHERUM  |        |        |                    |                   |
| elatus         | 19008  | 338629 | Morocco            | 205 gr.           |
| ARUNDINELLA    |        |        |                    |                   |
| hirta          | 18258  | -      | Korea              | 20.4 gr.          |
| hirta          | 18264  | -      | Korea              | 28.8 gr.          |
| BOTHRIOCHLOA   |        |        |                    |                   |
| ischaemum      | 4419   | -      | ex BN-3344, China  | 1.4 gr.           |
| ischaemum      | 18624  | 325211 | U.S.S.R.           | 68 gr.            |
| ischaemum      | 18625  | 325212 | U.S.S.R.           | 9.8 gr.           |
| ischaemum      | 18831  | 330698 | Iran               | 142 gr.           |
| ischaemum      | 18832  | -      | Iran               | 1.5 gr.           |
| BRACHIARIA     |        |        |                    |                   |
| decumbens      | 19300  | 344767 | Costa Rica         | 34.5 gr.          |
| BRACHYPODIUM   |        |        |                    |                   |
| pinnatum       | 8276   | 206545 | Greece             | 20.3 gr.          |
| pinnatum       | 9156   | -      | ex BN-8278, Greece | 6.7 gr.           |
| pinnatum       | 9752   | 251803 | Italy              | 20 gr.            |
| pinnatum       | 9836   | 253298 | Yugoslavia         | 1 gr.             |
| pinnatum       | 18629  | 325216 | U.S.S.R.           | trace             |

## 1970 Seed Production - Grasses

| GENUS                     |        |        |                 | Amount of     |
|---------------------------|--------|--------|-----------------|---------------|
| Species                   | BN No. | PI No. | Original Source | Seed          |
| BRACHYPODIUM              |        |        |                 |               |
| pinnatum                  | 18632  | 325219 | U.S.S.R.        | 0.4 gr.       |
| ramosus                   | 19272  | 344570 | Czechoslovakia  | 380 gr.       |
| rupestre                  | 17735  | 316170 | U.S.S.R.        | 2.2 gr.       |
| sylvaticum                | 9677   | 251102 | Yugoslavia      | 45.7 gr.      |
| BROMUS                    |        |        |                 |               |
| arvensis                  | 19009  | 338362 | Morocco         | 1.4 gr.       |
| biebersteinii             | 18633  | 325226 | U.S.S.R.        | 31.8 gr.      |
| biebersteinii             | 19160  | 341222 | Canada          | 9.2 gr.       |
| biebersteinii             | 19161  | 341223 | Canada          | 7.4 gr.       |
| erectus                   | 9682   | 251107 | Yugoslavia      | 18.8 gr.      |
| erectus                   | 9841   | 253301 | Yugoslavia      | 4.9 gr.       |
| erectus                   | 15280  | 253193 | Yugoslavia      | 100 gr.       |
| erectus                   | 16971  | 311371 | Spain           | 15 gr.        |
| inermis x<br>tyththolepis | 19159  | 341221 | Canada          | 6.7 gr.       |
| inermis                   | 13762  | -      | Virginia        | 92.5 gr.      |
| inermis                   | 18634  | 325227 | U.S.S.R.        | 147 gr.       |
| inermis                   | 18734  | 326258 | U.S.S.R.        | 159 gr.       |
| inermis                   | 18735  | 326259 | U.S.S.R.        | 126.4 gr.     |
| inermis                   | 18736  | 326260 | U.S.S.R.        | 54.4 gr.      |
| inermis                   | 18738  | 326262 | U.S.S.R.        | 2.7 gr.       |
| inermis                   | 18739  | 326263 | U.S.S.R.        | 1.5 gr.       |
| inermis                   | 18740  | 326264 | U.S.S.R.        | 64.5 gr.      |
| inermis                   | 18741  | 326265 | U.S.S.R.        | 27 gr.        |
| unioloides                | 8197   | 202696 | Argentina       | 41.7 gr.      |
| unioloides                | 18909  | 337517 | Argentina       | 1 lb., 11 oz. |
| willdenowii               | 7422   | 197849 | Argentina       | 97 gr.        |
| willdenowii               | 19010  | 338633 | Morocco         | 290 gr.       |
| CALAMAGROSTIS             |        |        |                 |               |
| arundinacea               | 12526  | 283207 | U.S.S.R.        | 6.9 gr.       |
| arundinacea               | 13625  | 286474 | Japan           | 0.3 gr.       |
| arundinacea               | 18635  | 325239 | U.S.S.R.        | 9.3 gr.       |
| arundinacea               | 18636  | 325240 | U.S.S.R.        | 2.4 gr.       |
| CENCHRUS                  |        |        |                 |               |
| ciliaris                  | 11620  | 271215 | India           | 152 gr.       |
| ciliaris                  | 16013  | 299526 | South Africa    | 108 gr.       |
| ciliaris                  | 19099  | 339892 | Australia       | 120 gr.       |
| ciliaris                  | 19100  | 339893 | Australia       | 174 gr.       |
| CHLORIS                   |        |        |                 |               |
| gayana                    | 19012  | 338636 | Morocco         | 26 gr.        |
| CHRYSOPOGON               |        |        |                 |               |
| gryllus                   | 6219   | 185145 | Iraq            | 22.5 gr.      |

## 1970 Seed Production - Grasses

| GENUS       |        |        |                       | Amount of |
|-------------|--------|--------|-----------------------|-----------|
| Species     | BN No. | PI No. | Original Source       | Seed      |
| DACTYLIS    |        |        |                       |           |
| glomerata   | 18511  | 323255 | Australia             | 7 gr.     |
| glomerata   | 15968  | 305498 | Poland                | 3.8 gr.   |
| glomerata   | 17630  | 315411 | U.S.S.R.              | 13.1 gr.  |
| glomerata   | 18244  | 321675 | France                | 26.2 gr.  |
| glomerata   | 18641  | 325287 | U.S.S.R.              | 26.9 gr.  |
| glomerata   | 18642  | 325288 | U.S.S.R.              | 0.2 gr.   |
| glomerata   | 18643  | 325290 | U.S.S.R.              | 44.6 gr.  |
| glomerata   | 18644  | 325294 | U.S.S.R.              | 6.3 gr.   |
| glomerata   | 18645  | 325296 | U.S.S.R.              | trace     |
| glomerata   | 18646  | 325301 | U.S.S.R.              | 0.5 gr.   |
| glomerata   | 18647  | 325302 | U.S.S.R.              | trace     |
| glomerata   | 18648  | 325303 | U.S.S.R.              | 11 gr.    |
| glomerata   | 18649  | 325307 | U.S.S.R.              | 10.4 gr.  |
| " hispanica | 9402   | 230116 | Iran                  | 3.5 gr.   |
| DICHANTHIUM |        |        |                       |           |
| annulatum   | 10363  | -      | Texas PMC             | 8.7 gr.   |
| DIGITARIA   |        |        |                       |           |
| fuscescens  | 10093  | 196479 | Brazil                | 55 gr.    |
| milanjiana  | 10421  | 284544 | Rhodesia              | 6.3 gr.   |
| smutzii     | 19527  | -      | Ivory Coast           | 11 gr.    |
| umfolozi    | 19528  | -      | Ivory Coast           | 15.1 gr.  |
| violascens  | 16214  | 312905 | Ecuador               | 73.2 gr.  |
| ECHINOPOGON |        |        |                       |           |
| nutans      | 10846  | 257715 | Australia             | 12.9 gr.  |
| ELYMUS      |        |        |                       |           |
| angustus    | 17553  | 314672 | U.S.S.R.              | 6.4 gr.   |
| angustus    | 17554  | 314673 | U.S.S.R.              | trace     |
| aralensis   | 17547  | 314663 | U.S.S.R.              | trace     |
| arenarius   | 18180  | 319819 | Sweden                | 2.9 gr.   |
| giganteus   | 17336  | 313965 | U.S.S.R.              | 3.6 gr.   |
| junceus     | 17350  | 314082 | U.S.S.R.              | 1.3 gr.   |
| junceus     | 17548  | 314665 | U.S.S.R.              | 23.2 gr.  |
| junceus     | 17549  | 314666 | U.S.S.R.              | 1.6 gr.   |
| junceus     | 17552  | 314669 | U.S.S.R.              | 3.1 gr.   |
| sibiricus   | 18743  | 326267 | U.S.S.R.              | 0.1 gr.   |
| sp.         | 17559  | 314678 | U.S.S.R.              | 0.7 gr.   |
| ERAGROSTIS  |        |        |                       |           |
| atherstonei | 15478  | 299038 | Rhodesia              | 40.5 gr.  |
| brownei     | 9310   | -      | ex BN-8782, Australia | 52.5 gr.  |
| chloromelas | 19015  | 338640 | Morocco               | 34 gr.    |
| curvula     | 19016  | 338641 | Morocco               | 162.5 gr. |
| ferruginea  | 18263  | -      | Korea                 | 43.6 gr.  |
| lehmanniana | 19017  | 338642 | Morocco               | 8.7 gr.   |

## 1970 Seed Production - Grasses

| GENUS         |        |        |                    | Amount of |
|---------------|--------|--------|--------------------|-----------|
| Species       | BN No. | PI No. | Original Source    | Seed      |
| ERAGROSTIS    |        |        |                    |           |
| obtusa        | 7622   | 199091 | South Africa       | 2.1 gr.   |
| porosa        | 6866   | 190317 | South Africa       | 6.6 gr.   |
| sarmentosa    | 8149   | 203352 | South Africa       | 56.5 gr.  |
| FESTUCA       |        |        |                    |           |
| arundinacea   | 11061  | 264766 | Netherlands        | 74.3 gr.  |
| arundinacea   | 11417  | 269850 | Tunisia            | 46 gr.    |
| arundinacea   | 12595  | 283279 | Israel             | 48.4 gr.  |
| arundinacea   | 12598  | 283282 | Morocco            | 3.2 gr.   |
| arundinacea   | 12599  | 283283 | Morocco            | 79.1 gr.  |
| arundinacea   | 12604  | 283289 | Germany            | 91 gr.    |
| arundinacea   | 12615  | 283301 | Tunisia            | 11.7 gr.  |
| arundinacea   | 17785  | 316243 | Israel             | 63.8 gr.  |
| arundinacea   | 17787  | 316245 | Morocco            | 13.1 gr.  |
| arundinacea   | 18512  | 323256 | Australia          | 215 gr.   |
| ovina         | 10509  | 257740 | Hungary            | 46 gr.    |
| ovina         | 17663  | 315448 | U.S.S.R.           | 57.4 gr.  |
| ovina         | 18833  | 330706 | Iran               | 3.6 gr.   |
| rubra         | 11535  | 270400 | U.S.S.R.           | 4 gr.     |
| rubra         | 16985  | 311406 | Spain              | 76.9 gr.  |
| sclerophylla  | 17354  | 314086 | U.S.S.R.           | 0.6 gr.   |
| sclerophylla  | 18655  | 325327 | U.S.S.R.           | 2.8 gr.   |
| sulcata       | 17355  | 314087 | U.S.S.R.           | 30.5 gr.  |
| sulcata       | 17477  | 314437 | U.S.S.R.           | 31 gr.    |
| sulcata       | 18656  | 325328 | U.S.S.R.           | 168 gr.   |
| GAUDINIA      |        |        |                    |           |
| fragilis      | 8760   | 238316 | Portugal           | 10.8 gr.  |
| HORDEUM       |        |        |                    |           |
| bulbosum      | 15623  | 306731 | Greece             | 1.8 gr.   |
| LEPTURUS      |        |        |                    |           |
| repens        | 7801   | 200229 | Kenya, East Africa | 4.5 gr.   |
| LOLIUM        |        |        |                    |           |
| perenne       | 18247  | 321681 | France             | 3.2 gr.   |
| remotum       | 12820  | 283613 | Sweden             | 73 gr.    |
| rigidum v.    | 19474  | -      | Madeira Islands    | 2.1 gr.   |
| rotbollioides |        |        |                    |           |
| temulentum    | 18872  | 331394 | Ethiopia           | 188.5 gr. |
| MELICA        |        |        |                    |           |
| altissima     | 18669  | 325418 | U.S.S.R.           | 2 gr.     |
| taurica       | 18670  | 325419 | U.S.S.R.           | 6.2 gr.   |



## 1970 Seed Production - Grasses

| GENUS         |        |        |                          | Amount of      |
|---------------|--------|--------|--------------------------|----------------|
| Species       | BN No. | PI No. | Original Source          | Seed           |
| ORYZOPSIS     |        |        |                          |                |
| miliacea      | 18811  | 330678 | Israel                   | 3.1 gr.        |
| paradoxa      | 13728  | 287906 | Spain                    | 12.5 gr.       |
| PANICUM       |        |        |                          |                |
| amarulum      | 2258   | -      | Virginia Beach           | 1 lb., 310 gr. |
| amarulum      | 8360   | -      | Virginia                 | 100 lbs.       |
| amarulum      | 18706  | -      | Manteo, North Carolina   | 2 lbs.         |
| antidotale    | 12247  | 213272 | India                    | 125 gr..       |
| antidotale    | 14711  | 315720 | Georgia PMC              | 78.3 gr.       |
| antidotale    | 18863  | 331180 | Argentina                | 240 gr.        |
| antidotale    | 19028  | 338654 | Morocco                  | 52.8 gr.       |
| bulbosum      | 19029  | 338655 | Morocco                  | 104.5 gr.      |
| clandestinum  | 18572  | -      | Tennessee                | 80.5 gr.       |
| coloratum     | 19030  | 338656 | Morocco                  | 5.4 gr.        |
| maximum       | 13110  | 284159 | Kenya, East Africa       | 84.5 gr.       |
| maximum       | 18866  | 331347 | Uganda                   | 5.7 gr.        |
| miliaceum     | 13820  | 289324 | Hungary                  | 30.8 gr.       |
| prolutum      | 19032  | 338658 | Morocco                  | 26 gr.         |
| turgidum      | 14424  | 292454 | Israel                   | 20 seeds       |
| virgatum      | 8624   | -      | Carthage, North Carolina | 5 lbs.         |
| " v. cubense  | 10997  | -      | North Carolina           | 2.4 gr.        |
| " v. cubense  | 18582  | -      | BN selection             | 6 lbs.         |
| PASPALUM      |        |        |                          |                |
| cromyorrhizon | 16628  | 310061 | Brazil                   | 9.4 gr.        |
| cromyorrhizon | 16632  | 310065 | Brazil                   | 1.1 gr.        |
| cromyorrhizon | 19616  | 276242 | Uruguay                  | 0.4 gr.        |
| cromyorrhizon | 19617  | 303967 | Brazil                   | trace          |
| guenoarum     | 18916  | 337559 | Argentina                | 117.5 gr.      |
| guenoarum     | 18916  | 337559 | Argentina                | 101 gr.        |
| notatum       | 18920  | 337569 | Argentina                | 233 gr.        |
| plicatulum    | 19526  | 353399 | Ivory Coast              | 172 gr.        |
| rojasii       | 10791  | 263381 | Paraguay                 | 205 gr.        |
| scrobiculatum | 19036  | 338662 | Morocco                  | 44.1 gr.       |
| PENNISETUM    |        |        |                          |                |
| orientale     | 18844  | 330717 | Iran                     | 15.5 gr.       |
| pedicellatum  | 11581  | 271146 | India                    | 295 gr.        |
| setaceum      | 18812  | 330679 | Israel                   | 15 oz.         |
| PHALARIS      |        |        |                          |                |
| aquatica      | 11257  | 266228 | Morocco                  | 3 gr.          |
| aquatica      | 13148  | 284197 | France                   | trace          |
| aquatica      | 13150  | 284199 | U.S.A. via Australia     | 3.5 gr.        |
| aquatica      | 13152  | 284201 | South Africa             | 0.2 gr.        |
| aquatica      | 13155  | 284204 | Israel                   | 1.9 gr.        |
| aquatica      | 13158  | 284207 | Portugal                 | 4 gr.          |
| aquatica      | 13159  | 284208 | Algeria                  | 3.8 gr.        |

## 1970 Seed Production - Grasses

| GENUS<br>Species          | BN No. | PI No. | Original Source | Amount of<br>Seed |
|---------------------------|--------|--------|-----------------|-------------------|
| PHALARIS                  |        |        |                 |                   |
| aquatica                  | 13167  | 284216 | Spain           | 6.8 gr.           |
| aquatica                  | 13170  | 284219 | Spain           | 0.4 gr.           |
| aquatica                  | 13172  | 284221 | Spain           | 6.1 gr.           |
| aquatica                  | 13174  | 284223 | Israel          | 0.6 gr.           |
| aquatica                  | 13175  | 284224 | Israel          | trace             |
| aquatica                  | 13176  | 284225 | South Africa    | 0.9 gr.           |
| aquatica                  | 17584  | 314963 | Australia       | 7.1 gr.           |
| aquatica                  | 19038  | 338665 | Morocco         | 3.7 gr.           |
| arundinacea               | 17672  | 315487 | U.S.S.R.        | 16.9 gr.          |
| arundinacea               | 18186  | 319825 | Norway          | 5.7 gr.           |
| tuberosa v.<br>stenoptera | 3702   | 150171 | Australia       | 12.8 gr.          |
| sp.                       | 13908  | 289670 | Spain           | 10.8 gr.          |
| POA                       |        |        |                 |                   |
| bulbosa                   | 17129  | 312469 | U.S.S.R.        | 1.5 gr.           |
| bulbosa                   | 17390  | 314162 | U.S.S.R.        | 3.5 gr.           |
| bulbosa                   | 17391  | 314163 | U.S.S.R.        | 1.9 gr.           |
| bulbosa                   | 17392  | 314164 | U.S.S.R.        | trace             |
| bulbosa                   | 17483  | 314472 | U.S.S.R.        | trace             |
| iberica                   | 18693  | 325462 | U.S.S.R.        | trace             |
| pratensis                 | 16146  | -      | India           | 52.7 gr.          |
| pratensis                 | 18788  | 330632 | Poland          | 16.3 gr.          |
| SESLARIA                  |        |        |                 |                   |
| heufleriana               | 17370  | 314105 | U.S.S.R.        | 0.7 gr.           |
| SETARIA                   |        |        |                 |                   |
| glauca                    | 11668  | 271610 | India           | 342 gr.           |
| SORGHASTRUM               |        |        |                 |                   |
| nutans                    | 14671  | -      | Mississippi     | 5.3 gr.           |
| SPOROBOLUS                |        |        |                 |                   |
| fimbriatus                | 7281   | 196373 | South Africa    | 42 gr.            |

## 1970 Seed Production - Legume &amp; Other

| GENUS<br>Species                                  | BN No. | PI No. | Original Source                | Amount of<br>Seed |
|---|--------|--------|--------------------------------|-------------------|
| ALYSSUM<br>murale                                 | 18101  | -      | Hungary                        | 34.2 gr.          |
| AMPELOPSIS<br>brevipedunculata<br>v. citrulloides | 18527  | -      | Chapel Hill,<br>North Carolina | 24.5 gr.          |
| ASTRAGALUS<br>asper                               | 17339  | 314059 | U.S.S.R.                       | 1.1 gr.           |
| boeticus  | 8479   | 233225 | Israel                         | 22.8 gr.          |
| cicer   | 18621  | 325205 | U.S.S.R.                       | 8.2 gr.           |
| galegiformis                                      | 6285   | 186282 | Malta                          | 133 gr.           |
| glycyphyllos                                      | 2591   | 121096 | Turkey                         | 205 gr.           |
| glycyphyllos                                      | 18622  | 325207 | U.S.S.R.                       | 48.1 gr.          |
| glycyphyllos                                      | 19268  | 344565 | Czechoslovakia                 | 2 gr.             |
| interpositus                                      | 17343  | 314065 | U.S.S.R.                       | trace             |
| sp.   | 8190   | 202149 | Argentina                      | 4 gr.             |
| DESMODIUM<br>canadense                            | 7894   | 263237 | Spain                          | 11.1 gr.          |
| HELIANTHEMUM<br>variable                          | 14604  | 292853 | Germany                        | 10.5 gr.          |
| HYPERICUM<br>chinense                             | 19286  | 344584 | Czechoslovakia                 | 12.1 gr.          |
| tetrapterum                                       | 19400  | 345997 | Norway                         | 0.4 gr.           |
| LATHYRUS<br>maritimus                             | 4320   | 315704 | Oregon                         | 0.9 gr.           |
| pratensis   | 16350  | 308028 | Czechoslovakia                 | 1.3 gr.           |
| sylvestris  | 12434  | 282562 | France                         | 4.5 gr.           |
| LESPEDeza<br>bicolor                              | 2279   | -      | Morton Arbor., Ill.            | 28 lbs.           |
| cuneata   | 18243  | -      | New York                       | 2 lbs.            |
| inschanica  | 18014  | 318640 | Korea                          | 420 gr.           |
| juncea  | 18012  | 318638 | Korea                          | 1 lb., 290 gr.    |
| x divaricata                                      | 18013  | 318639 | Korea                          | 178 gr.           |
| LOTUS<br>caucasicus                               | 17358  | 314090 | U.S.S.R.                       | 12.9 gr.          |
| caucasicus  | 17484  | 314930 | U.S.S.R.                       | 6.8 gr.           |
| caucasicus  | 18659  | 325369 | U.S.S.R.                       | 17.3 gr.          |
| caucasicus  | 18660  | 325370 | U.S.S.R.                       | 15.8 gr.          |
| caucasicus  | 18661  | 325371 | U.S.S.R.                       | 10.2 gr.          |
| caucasicus  | 18662  | 325372 | U.S.S.R.                       | 2.8 gr.           |

## 1970 Seed Production - Legume &amp; Other

| GENUS            |        |        |                       | Amount of      |
|------------------|--------|--------|-----------------------|----------------|
| Species          | BN No. | PI No. | Original Source       | Seed           |
| LOTUS            |        |        |                       |                |
| caucasicus       | 18663  | 325373 | U.S.S.R.              | 10.1 gr.       |
| caucasicus       | 18664  | 325374 | U.S.S.R.              | 81 gr.         |
| caucasicus       | 18665  | 325375 | U.S.S.R.              | 8 gr.          |
| caucasicus       | 18666  | 325376 | U.S.S.R.              | 50 gr.         |
| caucasicus       | 18667  | 325377 | U.S.S.R.              | 39.1 gr.       |
| corniculatus     | 7905   | 246730 | Spain                 | 14.3 gr.       |
| corniculatus     | 13550  | 3372   | Maryland              | 7 lbs., 12 oz. |
| corniculatus     | 15505  | 300015 | South Africa          | 17.8 gr.       |
| corniculatus     | 17670  | 315455 | U.S.S.R.              | 1 gr.          |
| corniculatus     | 18447  | 322556 | Brazil                | 36.1 gr.       |
| ornithipodioides | 18003  | -      | Greece                | 25.5 gr.       |
| pedunculatus     | 7145   | 194059 | Holland               | 5.5 gr.        |
| pedunculatus     | 8972   | 202383 | Chile                 | 7.1 gr.        |
| peregrinus       | 8778   | 238335 | Israel                | 10.5 gr.       |
| purshianus       | 19328  | -      | N. Central Util. Lab. | 3.5 gr.        |
| tenuis           | 7129   | -      | Forage Crops, ARS     | 1 gr.          |
| tenuis           | 18579  | 344045 | ex BN-17086, Hungary  | 4.2 gr.        |
| LUPINUS          |        |        |                       |                |
| alba             | 17823  | 316287 | Portugal              | 28 gr.         |
| angustifolius    | 10730  | -      | Commercial            | 25.2 gr.       |
| angustifolius    | 19021  | 338646 | Morocco               | 9 seeds        |
| hirsutus         | 19022  | 338647 | Morocco               | 37.7 gr.       |
| luteus           | 13801  | 289172 | Hungary               | 38.7 gr.       |
| luteus           | 17824  | 316288 | Hungary               | 18 seeds       |
| MEDICAGO         |        |        |                       |                |
| falcata          | 8552   | -      | Alaska                | 0.2 gr.        |
| marina           | 14387  | 292417 | Israel                | 2 pods         |
| truncatula       | 7559   | 198662 | Australia             | 161 gr.        |
| v. tribuloides   |        |        |                       |                |
| MELILOTUS        |        |        |                       |                |
| wolgica          | 17361  | 314095 | U.S.S.R.              | 11 gr.         |
| ONONIS           |        |        |                       |                |
| hircina          | 18690  | 325449 | U.S.S.R.              | 0.1 gr.        |
| ORIGANUM         |        |        |                       |                |
| vulgare          | 18692  | 325457 | U.S.S.R.              | 0.4 gr.        |
| ORNITHOPUS       |        |        |                       |                |
| sativus          | 13091  | 284140 | Portugal              | 5 gr.          |
| PAROCHETUS       |        |        |                       |                |
| communis         | 7754   | 199353 | Kenya, East Africa    | 25 gr.         |



## 1970 Seed Production - Legume &amp; Other

| GENUS          |        |            |                      | Amount of |
|----------------|--------|------------|----------------------|-----------|
| Species        | BN No. | PI No.     | Original Source      | Seed      |
| SALVIA         |        |            |                      |           |
| hispanica      | 19653  | -          | Mexico               | 16.8 gr.  |
| SANGUISORBA    |        |            |                      |           |
| agrimonioides  | 15207  | 297949     | Portugal             | 1 gr.     |
| minor ssp.     | 19431  | 346028     | Norway               | 2.5 gr.   |
| magnoli<br>sp. | 15217  | 297959     | Spain                | 1.6 gr.   |
| SCORPIURUS     |        |            |                      |           |
| muricata       | 8524   | 233270     | Israel               | 20 gr.    |
| SEDUM          |        |            |                      |           |
| ellacombianum  | 15080  | 297374     | Norway               | 1.7 gr.   |
| TRIFOLIUM      |        |            |                      |           |
| africanum      | 16142  | 300146     | South Africa         | 1 gr.     |
| agrarium       | 9593   | -          | Canada               | 1 gr.     |
| ambiguum       | 12963  | 284005     | Turkey               | 3.5 gr.   |
| cf. balansae   | 10945  | -          | ex PI-120159, Turkey | 4 gr.     |
| cherleri       | 12971  | 284013     | Portugal             | 7.8 gr.   |
| v. carmeli     | 10604  | 258402     | Israel               | 27.4 gr.  |
| echinatum      |        |            |                      |           |
| v. carmeli     | 12968  | 284010     | Israel               | 11.2 gr.  |
| elongatum      | 14731  | 253200     | Yugoslavia           | 20.5 gr.  |
| fragiferum     | 15243  | 297985     | Tunisia              | 3 gr.     |
| fragiferum     | 17881  | 316352     | U.S.S.R.             | 12.7 gr.  |
| fragiferum     | 17882  | 316353     | U.S.S.R.             | 14.7 gr.  |
| fragiferum     | 18700  | 325500     | U.S.S.R.             | 0.8 gr.   |
| glomeratum     | 9541   | 120230     | Turkey               | 23.1 gr.  |
| glomeratum     | 9551   | 120235     | Turkey               | 48.2 gr.  |
| hirtum         | 18513  | 323259     | Australia            | 109 gr.   |
| hybridum       | 9567   | 120250-Q39 | Turkey               | 67.4 gr.  |
| hybridum       | 10943  | 120239-Q39 | Turkey               | 1.3 gr.   |
| hybridum       | 10952  | -          | ex BN-9587, Turkey   | 25.5 gr.  |
| hybridum       | 13993  | 290730     | England              |           |
| incarnatum     | 10206  | 255393     | Yugoslavia           | 1.8 gr.   |
| incarnatum     | 13232  | 284281     | Morocco              | 38.7 gr.  |
| incarnatum     | 13234  | 284283     | England              | 0.4 gr.   |
| incarnatum     | 13235  | 284284     | Turkey               | 10.4 gr.  |
| repens         | 17035  | 311495     | Spain                | 104.6 gr. |
| rubens         | 17380  | 314123     | U.S.S.R.             | 5 gr.     |
| squarrosus     | 9421   | 103517     | Algeria              | 16.5 gr.  |
| VICIA          |        |            |                      |           |
| amurensis      | 18953  | -          | U.S.S.R.             | 9.2 gr.   |
| articulata     | 19049  | 338680     | Morocco              | 93.3 gr.  |
| benghalensis   | 16418  | 308096     | Czechoslovakia       | 158.5 gr. |

## 1970 Seed Production - Legume &amp; Other

| GENUS         |        |        |                        | Amount of |
|---------------|--------|--------|------------------------|-----------|
| Species       | BN No. | PI No. | Original Source        | Seed      |
| VICIA         |        |        |                        |           |
| benghalensis  | 19050  | 338681 | Morocco                | 167.5 gr. |
| dasycarpa     | 19253  | -      | California             | 78.8 gr.  |
| dasycarpa     | 19254  | -      | Texas                  | 57 gr.    |
| disperma      | 16437  | 308115 | Czechoslovakia         | 25 gr.    |
| eriocarpa     | 19190  | -      | Dr. Gunn, NCRB, ARS    | 122 gr.   |
| ervilia       | 19106  | 340132 | Turkey                 | 73 gr.    |
| ervilia       | 19107  | 340133 | Turkey                 | 36 gr.    |
| ervilia       | 19108  | 340134 | Turkey                 | 68.2 gr.  |
| ervilia       | 19109  | 340135 | Turkey                 | 65.7 gr.  |
| ervilia       | 19110  | 340136 | Turkey                 | 54.8 gr.  |
| ervilia       | 19111  | 340137 | Turkey                 | 69 gr.    |
| ervilia       | 19112  | 340139 | Turkey                 | 59.7 gr.  |
| ervilia       | 19113  | 340140 | Turkey                 | 44 gr.    |
| ervilia       | 19114  | 340141 | Turkey                 | 66.2 gr.  |
| ervilia       | 19115  | 340142 | Turkey                 | 56.1 gr.  |
| ervilia       | 19116  | 340143 | Turkey                 | 52.2 gr.  |
| ervilia       | 19117  | 340144 | Turkey                 | 63.5 gr.  |
| ervilia       | 19118  | 340145 | Turkey                 | 49.4 gr.  |
| faba          | 11493  | 268477 | Afghanistan            | 38.2 gr.  |
| filicaulis    | 19174  | 348918 | Canary Islands         | 23.8 gr.  |
| floridana     | 17900  | 316684 | Florida                | trace     |
| graminea      | 7446   | 197873 | Argentina              | 1.8 gr.   |
| graminea      | 16425  | 308103 | Czechoslovakia         | 15.9 gr.  |
| grandiflora   | 13535  | -      | NPMC                   | 18.9 gr.  |
| hajastana     | 19191  | 347749 | U.S.S.R.               | 44.5 gr.  |
| humilis       | 18957  | 343008 | Mexico                 | 1.6 gr.   |
| hyrcanica     | 19192  | 349413 | Germany                | 68 gr.    |
| incisaeformis | 19193  | -      | Dr. Gunn, NCRB, ARS    | 40 gr.    |
| japonica      | 18958  | -      | U.S.S.R.               | trace     |
| kingii        | 19185  | -      | Argentina              | 0.4 gr.   |
| lathyroides   | 17055  | 307469 | Sweden                 | 16.5 gr.  |
| leavenworthii | 17902  | 316686 | Texas                  | 31.7 gr.  |
| leavenworthii | 19256  | 349269 | Texas                  | 18.8 gr.  |
| leavenworthii | 19257  | 349270 | New Mexico             | 17.4 gr.  |
| lutea         | 13302  | 284351 | Portugal               | 15.4 gr.  |
| macrocarpa    | 19194  | -      | Dr. Gunn, NCRB, ARS    | 311.2 gr. |
| melanops      | 19195  | 349271 | Germany                | 36.5 gr.  |
| meyeri        | 19196  | -      | Dr. Gunn, NCRB, ARS    | 8.3 gr.   |
| monantha      | 18219  | 324710 | ex PI-314155, U.S.S.R. | 2.4 gr.   |
| narbonensis   | 19119  | 340146 | Turkey                 | 117 gr.   |
| narbonensis   | 19120  | 340147 | Turkey                 | 42.2 gr.  |
| narbonensis   | 19121  | 340148 | Turkey                 | 24.5 gr.  |
| narbonensis   | 19122  | 340149 | Turkey                 | 48.8 gr.  |
| narbonensis   | 19123  | 340150 | Turkey                 | 42.7 gr.  |
| narbonensis   | 19124  | 340151 | Turkey                 | 96 gr.    |
| narbonensis   | 19125  | 340152 | Turkey                 | 65.5 gr.  |
| narbonensis   | 19126  | 340153 | Turkey                 | 102.5 gr. |

## 1970 Seed Production - Legume &amp; Other

| GENUS       |        |        |                     | Amount of |
|-------------|--------|--------|---------------------|-----------|
| Species     | PI No. | BN No. | Original Source     | Seed      |
| VICIA       |        |        |                     |           |
| narbonensis | 19127  | 340154 | Turkey              | 51 gr.    |
| narbonensis | 19128  | 340155 | Turkey              | 51 gr.    |
| narbonensis | 19129  | 340156 | Turkey              | 34.3 gr.  |
| narbonensis | 19251  | 349272 | Turkey              | 69.3 gr.  |
| neglecta    | 19197  | -      | Dr. Gunn, NCRB, ARS | 61.8 gr.  |
| neglecta    | 19197  | -      | Dr. Gunn, NCRB, ARS | 7.2 gr.   |
| ocalensis   | 17901  | 316685 | Florida             | 1.8 gr.   |
| pannonica   | 17972  | 317906 | Czechoslovakia      |           |
| pilosa      | 19199  | -      | Dr. Gunn, NCRB, ARS | 35.8 gr.  |
| pisiformis  | 17381  | 314124 | U.S.S.R.            | 180 gr.   |
| sativa      | 19105  | 340131 | Turkey              | 99.3 gr.  |
| sativa      | 19130  | 340159 | Turkey              | 180 gr.   |
| sativa      | 19131  | 340158 | Turkey              | 343 gr.   |
| sativa      | 19132  | 340158 | Turkey              | 332.5 gr. |
| sativa      | 19133  | 340160 | Turkey              | 259 gr.   |
| sativa      | 19134  | 340161 | Turkey              | 81.9 gr.  |
| sativa      | 19135  | 340162 | Turkey              | 206 gr.   |
| sativa      | 19136  | 340163 | Turkey              | 284.3 gr. |
| sativa      | 19137  | 340164 | Turkey              | 247.5 gr. |
| sativa      | 19138  | 340165 | Turkey              | 41.3 gr.  |
| sativa      | 19139  | 340166 | Turkey              | 160 gr.   |
| sativa      | 19140  | 340167 | Turkey              | 278 gr.   |
| sativa      | 19141  | 340168 | Turkey              | 432.5 gr. |
| sativa      | 19142  | 340169 | Turkey              | 266 gr.   |
| unijuga     | 18965  | 344758 | Belgium             | 2 gr.     |
| variegata   | 18966  | -      | U.S.S.R.            | 4 seeds   |
| villosa     | 19051  | 338682 | Morocco             | 194.5 gr. |
| villosa     | 19143  | 340170 | Turkey              | 95 gr.    |
| villosa     | 19144  | 340171 | Turkey              | 82 gr.    |
| villosa     | 19145  | 340172 | Turkey              | 125.5 gr. |
| villosa     | 19146  | 340173 | Turkey              | 264.5 gr. |
| villosa     | 19147  | 340174 | Turkey              | 72.2 gr.  |
| villosa     | 19148  | 340175 | Turkey              | 151.3 gr. |
| villosa     | 19149  | 340176 | Turkey              | 31 gr.    |
| villosa     | 19331  | -      | Turkey              | 39.5 gr.  |

